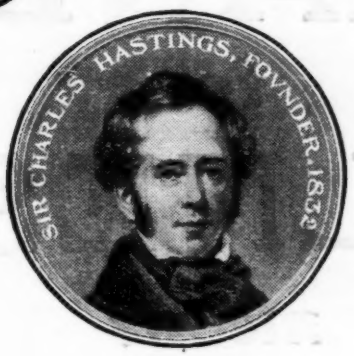
Medical Lib.

The British Medical Journal



THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

Including an Epitome of Current Medical Literature.

WITH SUPPLEMENT.

No. 3241. SATURDAY, FEBRUARY 10, 1923. **Price 1/3**

SECOND EDITION. In Two Vols. 45/- net.

DEFORMITIES

INCLUDING

DISEASES OF THE BONES & JOINTS.

A TEXT-BOOK OF ORTHOPÆDIC SURGERY.

BY

A. H. TUBBY, C.B., C.M.G., M.S.

Illustrated by 70 Plates and over 1,000 Figures, and by Notes of Cases.

"The standard text-book in English on the subject."—*The Lancet.*

MACMILLAN & Co., Ltd.,
St. Martin's Street, London, W.C.

SECOND EDITION. Demy 8vo. Pp. x. + 242. With 42 Illustrations. Price 10s. 6d. net (Post. 9d.)

SQUINT:

Its Causes, Pathology, and Treatment.

By CLAUD WORTH, F.R.C.S.Eng., Consulting Surgeon Royal London Ophthalmic Hospital;

BAILLIÈRE TINDALL & COX,
8, Henrietta Street, Covent Garden, London, W.C. 2.

A NEW ONE-VOLUME MEDICINE.

A TEXTBOOK OF THE PRACTICE OF MEDICINE

Including Sections on DISEASES OF THE SKIN and PSYCHOLOGICAL MEDICINE. Tropical Diseases are also included.

By various Authors who have made a special study of the different branches of Medicine.

EDITED BY

FREDERICK W. PRICE, M.D., F.R.S.(Edin.),

Senior Physician to the Royal Northern Hospital; Physician to the National Hospital for Diseases of the Heart, London.

"The various sections are in most capable hands, and the result is a work which, in our opinion, represents British Medicine of to-day more completely than does any other single volume."—*The Clinical Journal.*

"We know of no book on Medicine in one volume which can be compared to it, and it cannot be too highly recommended."—*New York Medical Journal.*

Demy 8vo. Cloth. Illustrated. 1792 pages. 35/- net.

OXFORD MEDICAL PUBLICATIONS,
THE LANCET Building, 1, Bedford St., London, W.C.2.

Angina Pectoris.

By Walter Verdon, F.R.C.S.

Right Hon. Sir CLIFFORD ALLBUTT, K.C.B.—"*For him as for me the Coronary and myocardial hypotheses...are dead and buried.*"

Sir J. MACKENZIE, F.R.S.—"*A storehouse of facts and observations of the greatest value. A classic.*"

MED. TIMES.—"*Wealth of practical detail.*"

BAILLIÈRE, TINDALL & COX. Pp. 414 18s. 6d.

NOW READY. Demy 8vo. Pp. xii + 196. With 50 Figs. Price 10s. 6d. net (postage 6d.).

DISEASES OF THE HEART:

A HANDBOOK FOR PRACTITIONERS & STUDENTS,

Containing an Account of Clinical Electrocardiography.

By I. HARRIS, M.D., L.R.C.P.(Ed.), Hon. Physician-in-Charge, Cardiographic Department, Liverpool Northern Hospital.

BAILLIÈRE, TINDALL & COX, 8, Henrietta Street, Covent Garden, W.C. 2.

Illustrated 8vo. 31s. 6d. net.

BRAIN ABSCESS: Its Surgical Pathology & Operative Technic.

By WELLS P. EAGLETON, M D. Newark, N.J.

MACMILLAN & Co., Ltd., London, W.C. 2.

SAVOY **AIX-LES-BAINS** FRANCE

FOR THE CURE OF

RHEUMATIC AFFECTIONS AND GOUT.

THERMAL ESTABLISHMENT OPEN ALL THE YEAR ROUND.

Hot Sulphur Springs (46° c.) 5 million litres a day.

TREATMENT BY DOUCHE-MASSAGE.

All information and pamphlets obtainable from Office Français de Tourisme, 56, Haymarket, London, S.W. 1.

BRANDY
for
ILLNESS
means
MARTELL

REPUTATIONS ARE ESTABLISHED
OR DESTROYED BY TIME

After Sixty-three years of use

FELLOWS' SYRUP OF THE HYPOPHOSPHITES

a combination of chemical foods and synergistic agents in an easily assimilable and palatable form, is to-day prescribed by physicians the world over. Clinical evidence has confirmed its reputation as

THE STANDARD TONIC

Samples and literature on request

FELLOWS MEDICAL MANUFACTURING COMPANY, Inc.
26 Christopher Street New York, N. Y., U. S. A.

A Hunterian Lecture

ON

SOME PROBLEMS OF GASTRIC AND DUODENAL ULCER.

DELIVERED BEFORE THE HUNTERIAN SOCIETY OF LONDON, JANUARY 29TH, 1923,

BY

SIR BERKELEY MOYNIHAN, BT., K.C.M.G., C.B., F.R.C.S.,

SENIOR SURGEON, LEEDS GENERAL INFIRMARY; PROFESSOR OF CLINICAL SURGERY, UNIVERSITY OF LEEDS.

A BACKWARD look over a few years in the course of a man's life may be of great value. It is very necessary for the surgeon, whose opinion and whose practice can rarely stay unchanged. For he is one who must always be in eager search of a sounder judgement, or a better method; reluctant to abandon any well proved conclusion or trusted procedure, he will yet remain quick to give the fullest consideration to all the lessons that increasing experience may seem to teach. To review our own work is a very stern and salutary discipline. It will make clear the need to correct the impressions, often vague and sometimes very treacherous, which have been gained rather from the occasional dramatic occurrence than from the tranquil observance of a daily and placid routine; it may confirm our faith in convictions which have slowly grown, and strengthened almost imperceptibly; it will lead us to test once again an opinion not quite so impregnable as we had thought. The correlation of many incidents, apparently unrelated at the scattered times of their occurrence, will provoke a new inquiry or reveal a truth which lay buried deep. From a long array of cases we can glean knowledge that the single case can never disclose. The years certainly teach much that the days never knew.

For the purpose of this address I have passed in review my experience during the last ten years in the treatment of diseases of the stomach and duodenum. The literature of this subject is already formidable in volume, but unhappily its value is by no means proportionate to its bulk. The foundations of most of it are unsound. The present generation of physicians and surgeons are not wholly to blame. We have come into a deceptive inheritance; a large part of what we thought was gold has proved to be tinsel, the authority of a great name alone bestowing any interest upon it. Here at least we may agree with Damascenus, that "without exquisite knowledge, to work out of books is most dangerous."

In the older literature there is, however, much of great value. Matthew Baillie, Cruveilhier, Brinton, and a very few others may be read with interest and profit to-day. After them came a host of authors nearly all of whom taught what has proved to be rank error in connexion both with gastric and duodenal ulcer. Gastric ulcer was held to be a common disease, diagnosed with ease if certain symptoms were present. Of duodenal ulcer almost nothing was known; its occurrence was held to be very rare, its diagnosis difficult or unattainable. In the literature of the hour a great deal has still to be taken on trust. And we shall never arrive at the truth about these diseases until we refuse to accept anything on trust—until we decide, for example, that when we speak of a case of "gastric ulcer" we really do know that an ulcer is present. Not all even of the surgical literature of to-day will stand that simple test.

A definition of terms is necessary. I hold that a "chronic ulcer," whether of the stomach or of the duodenum, is a visible and palpable lesion which has existed for months or years. In it are seen clearly the evidences not only of destruction but of stubborn defence; there is a crater of varying size; in depth the ulcer involves at least the muscular coat, and may extend completely through all the coats, an acute perforation being prevented only by the firm adhesion of the ulcer to a neighbouring structure, which then forms its base. Such an ulcer is the cause of symptoms the chief character in which is the tendency to show intervals of freedom between attacks of pain. The cause of the symptoms is not the ulcer alone, for in the intervals of freedom the inert crater of an ulcer is still to be seen; and open ulcers are found *post mortem* in those not known to be suffering immediately before death from any symptoms of dyspepsia. It seems possible that an ulcer in the perfectly callous state does not provoke any symptoms until the time when there is renewed activity in the ulcerative process at a part of the circumference of the crater. Activity and apathy of the ulcer are in this way the cause of exacerbation and remission of the symptoms. Transient attacks may be due also to the development of a number of acute ulcers round about the chronic ulcer or in an area of the stomach apposed to it. The breaking down of a healed scar has been seen in a small number of cases. Acute infections elsewhere may rouse activity in a dormant ulcer. The term "acute ulcer" is used to describe a condition in which chaps, fissures, erosions, or extensive surface destructions of the mucosa, or even of deeper layers, are found. There is often clear evidence of an impediment to the vascular supply resulting in a defenceless area, of which the gastric juice makes haste to take advantage. The ulcers thus arising develop rapidly often as terminal events, in consequence of a very heavy infection or a grave toxaemia, and they probably heal very rapidly. Their clinical importance is generally apparent only when haemorrhage or perforation occurs, though a profound dislike of food, severe epigastric pain and vomiting controlled with difficulty, are to be attributed, in cases of acute septic disease, to the gastric erosions which are found on *post-mortem* examination. Acute ulcers are multiple; it is possible that a chronic ulcer begins in one of the acute ulcers that refuses to heal. We do not know any clinical symptoms which indicate the transition from an acute to a chronic ulcer, assuming such a change to occur. It is the chronic ulcer in the stomach or in the duodenum which is the cause of severe, protracted, and recurring attacks. It is with chronic ulcer alone that the following remarks are concerned.

The number of cases here reviewed is 718. These were as follows:

531 cases of duodenal ulcer (men 433, women 98).
164 cases of gastric ulcer (men 83, women 81); in 152 cases one ulcer was present, in 12 cases two or more ulcers.
23 cases of gastric and duodenal ulcers together (men 10, women 13).

In the total number of cases of gastric ulcer (187) a duodenal ulcer was found therefore in 12.3 per cent.

The last death from any operation for duodenal ulcer occurred in 1912; there have been over 500 consecutive cases without a death. Among the total number of patients operated upon for duodenal ulcer there were 6 who later developed jejunal ulcers. The mortality in cases of gastric ulcer, and gastric and duodenal ulcer, treated by gastrectomy is 1.6 per cent. A few cases have been treated by other methods to be mentioned later. In every case included in this review an ulcer has been seen and demonstrated. It is an essential preliminary to call attention to this fact, for so much of what is written is based upon opinions as to what may be present rather than upon certain knowledge of what in truth is present.

There is creeping into the literature of this subject the term "juxtapyloric" as applied to ulcers. It is an entirely unnecessary term; its use indicates loose thinking and will lead to great confusion. An ulcer is either in the stomach or in the duodenum. In the series of cases which I am now reviewing there have been three only in which there was any doubt as to the exact position or origin of the ulcer. The pyloric vein or veins and the pyloric white line indicate with quite sufficient clearness the separation between the stomach and the duodenum. A duodenal ulcer is almost always half an inch or more from these landmarks, though it may extend up to them, or even beyond them into the stomach. A gastric ulcer is very rarely within an inch and a half of the pylorus; it is with the fewest exceptions two inches or more from the pylorus, and is oftenest found on the lesser curvature or the posterior surface or both. A pyloric ulcer, an ulcer beginning exactly at the pylorus, is excessively rare. "Pyloric stenosis" is virtually always duodenal stenosis. For the term "juxtapyloric" there is no justification; its use betrays a lack of knowledge of the conditions found when the parts are inspected during life; it is a peg upon which to hang the half-truths.

The chief clinical symptoms of ulcer of the stomach are pain, vomiting, and haematemesis, and of these the really important one is pain. The supremely significant feature with regard to the pain is its punctuality. In the same patient after the same meals it appears with the most exact regularity after the same interval of comfort. If a breakfast is taken at 9 a.m. and pain appears at 10 a.m. on one day, the same breakfast on all other days will be followed by the same hour of comfort and the same appearance of pain at the due moment. A time-table of one day, then, fits any other day.

Far less attention than it merits is given to a searching analysis of a day's routine. A patient will not seldom tell you he can "set his watch" by the time incidence of his suffering. The periodicity of the pain is, of course, altered by variations in the quantity and quality of the food and by the irregularity of meals. A point which is well worth attention concerns the rhythm of the pain. In cases of gastric ulcer the pain which, after an interval, follows the taking of a meal gradually disappears before the next meal. In cases of duodenal ulcer the pain continues until the next meal, or until food is taken to give ease to a wearisome pain. The rhythm of gastric ulcer is "food, comfort, pain, comfort," and then again food, comfort, pain, comfort; of duodenal ulcer it is "food, comfort, pain," and then again food, comfort, pain—a quadruple rhythm in the former disease, a triple rhythm in the latter. In my series of cases pain appeared within one and a half hours in 3 cases out of 5 of gastric ulcer, and after two hours in 4 cases out of 5 of duodenal ulcer. Seasonal variations are common in duodenal ulcer, less noticed in cases of gastric ulcer. The occurrence of haematemesis is often held to indicate with great probability the presence of a gastric ulcer. Haemorrhage in formidable quantity cannot occur apart from a considerable lesion of the stomach, oesophagus, or duodenum. In the stomach such a lesion may be a chronic ulcer or an "acute" ulcer. In years gone by, when operations were performed as mistaken efforts at rescue work in cases of copious haematemesis, the mucous membrane was often seen to be studded with tiny points from which blood was steadily trickling—the stomach "wept blood." The blood came from multiple points of acute ulceration. If a patient has so large a haematemesis as to cause death, and if the cause of the bleeding is the erosion of a vessel in a gastric ulcer, a chronic ulcer will be found far more often than an acute ulcer. So many cases of haematemesis are due to the toxaemia of appendicitis or other grave infections, to cirrhosis of the liver, and to splenic anaemia, that no hasty conclusions as to the presence of a chronic gastric ulcer may be drawn from the occurrence of this symptom. In cases of duodenal ulcer both haematemesis and melaena may occur; the latter is almost invariably in excess of the former in quantity and frequency.

A very close scrutiny of all the details of the clinical history allows a diagnosis of duodenal ulcer to be made with a considerable degree of confidence. There should always be hesitancy in making a diagnosis of gastric ulcer. A duodenal ulcer is far more common than a gastric ulcer, and therefore when an "ulcer history" is elicited, a suggestion that the ulcer lies beyond the pylorus has the greater chance of accuracy, since probability is the very guide of life. But there is more to be considered than that. There are so many conditions having their origin elsewhere, within the abdomen or outside it, that are expressed in terms of gastric discomfort that even the most searching analysis of all symptoms may leave us unconvinced that a structural lesion in the stomach is present. I may perhaps sum up my experience of the clinical diagnosis of these two conditions by saying that when, with great confidence, I make the diagnosis of duodenal ulcer from the clinical history alone, I feel wounded and amazed if I prove wrong; whereas when, with a sense of pride in my courage, I make the diagnosis of gastric ulcer, I feel very contented, even a little elated, if I prove right. We turn, therefore, eagerly in all cases of gastric ulcer to other methods of examination in the hope of greater enlightenment.

Of all ancillary methods of diagnosis that of the radiologist should be of greatest value. In the diagnosis of gastric ulcer it has pride of place; in competent hands it is far more accurate than any other method of diagnosis, clinical or chemical, or than all other methods combined. It is, indeed, so trustworthy that unless a diagnosis of gastric ulcer made upon clinical evidence is confirmed by the radiologist it should rarely, if ever, be accepted. There are, indeed, only two certain and unequivocal methods of making a diagnosis of gastric ulcer—that of the radiologist and that of the surgeon. Unless a gastric ulcer is seen we can never be quite confident of its presence. We must walk by sight and not by faith. I think it is quite true to say that no merely clinical diagnosis of any condition is so apt to be fallacious as is that of "gastric ulcer." Yet cases are met with very frequently in which this diagnosis has been made upon the flimsiest clinical evidence. When such a diagnosis becomes the warrant for medical treatment, when such treatment is expanded into a "system," and when the statistical results of such systems are offered for our consideration and respectful admiration, we cannot but feel aghast at the mountain of falsity which looks so imposing and is in truth so unreal. Until we have learnt far more than we know at present, might we not resolve to apply the term "gastric ulcer" only to the cases in which the diagnosis is certain, and to judge of the efficacy of therapeutic methods, and of the pathological destiny of the lesion, only in such proven cases?

The radiological evidences of an ulcer have been fully described by Carman and others. The niche or accessory pocket has been well seen in exactly one-third of our cases; the abiding spasm of a zone of the stomach, the "notch" on the greater curvature, seen with or without the crater, indicates just as certainly as the niche the presence of an ulcer. The condition of the stomach in respect of its general muscular tone is now always observed; it is interesting to find that the orthotonic, the hypotonic, and the hypertonic types occur with exactly equal frequency in cases in which a gastric ulcer has been proved to exist. In cases of duodenal ulcer an orthotonic condition was found in 44 per cent., a hypotonic in 24 per cent., a hypertonic in 32 per cent. Deformities of the duodenal bulb are as certain an evidence of ulcer as are the niche and notch in cases of gastric ulcer. When stenosis has resulted from the firm healing of an ulcer, whether in the stomach or duodenum or both, the radiological examination reveals the clearest proof of the conditions present.

An additional method of inquiry which we follow in the great majority of cases consists in the examination of the gastric contents by the fractional method of Rehfuss. In my earlier experience I had several hundreds of cases examined after an Ewald test meal, but I found that so little helpful information was given at so great an expense of time and trouble, both to the patient and to ourselves, that I was glad to abandon the procedure altogether. The new method, which we have used for over a year, is more rational and has been most informative. The following table shows the results obtained, the classification of the six grades of acidity being that suggested by Dr. J. R. Bell of Melbourne, to whom I am indebted for a part of this work.

Results of New Method of Examination of 110 Cases of Ulcer.

	Gastric Ulcer (39 Cases).			Duodenal Ulcer (71 Cases).		
	No. of Cases.	Per Cent.		No. of Cases.	Per Cent.	
Achlorhydria	5	13.1		4	5.5	
Hypochlorhydria	6	15.7		3	4.1	
Low normal	7	18.4		9	12.8	
Normal	13	34.2		4	5.5	
High normal	6	15.7	20.9	17	24.2	72.7
Hyperchlorhydria	2	5.2		34	48.5	
Curve with terminal ascent	1	0.2		21 (in 45)	46.6	
Stomach empties—						
Within 2 hours	7	18.6		20	28.5	
Between 2 and 3 hours ...	12	31.5	78.8	35	50.0	72.8
Over 3 hours	18	47.3		16	22.8	

It will be noticed that only 20 per cent. of the cases of gastric ulcer show a high normal curve or hyperchlorhydria, whereas the percentage of such changes in cases of duodenal ulcer is 72.7. The most characteristic feature of the chart in cases of duodenal is the "terminal ascent," yet this was present in less than half the cases. Delay in emptying the stomach was conspicuous in both groups. The rapid emptying of a hypertonic stomach when the test meal showed hyperacidity or a high normal curve was found in 6 cases only of duodenal ulcer, and in one case where there was a small gastric ulcer high on the lesser curvature.

To compare with this table I show another compiled from the records of patients referred to me as probably suffering from gastric or duodenal ulcers. In none was any ulcer discovered, in 2 cases a hypertonic stomach emptied rapidly and the Rehfuss chart indicated hyperchlorhydria, in one a similar gastric condition was associated with a low normal type of acidity.

23 Cases of Chronic Infection within the Abdomen, including Cases of Appendicitis, Tuberculous Disease of Intestine or of the Mesenteric Glands, all Clinically Resembling Gastric or Duodenal Ulcer.

	Cases.	Per Cent.	
Achlorhydria	... 3	 13	
Hypochlorhydria	... 8	..... 34.7	
Low normal	... 5	..... 21.7	
Normal	... 6	 26	
High normal	... –	.....	4.3
Hyperchlorhydria	... 1	..... 4.3	
Curve with terminal ascent ...	... 3	 13	
Stomach empties—			
Within 2 hours	... 4	 17	
Between 2 and 3 hours ...	... 12	 52	83.0
Over 3 hours	... 7	 31	

Let us assume that a diagnosis of gastric or duodenal ulcer has been made with great confidence. The question will at once arise as to the method of treatment that has now to be adopted in order to relieve the patient of his symptoms, and finally to remove the grave peril to his life which the disease undoubtedly threatens. There has been great strife between physician and surgeon over this matter—strife in which I must confess to the most languid interest. I claim that I rarely offer advice to patients. My endeavour is to present a case for consideration, to discuss the probabilities of diagnosis and the reasons for and against any method of treatment, whether medical or surgical. Being a physician doomed to the practice of surgery, I feel no desire to press one method or another, and I most earnestly seek to put the whole problem before the patient as I should put it before myself or before anyone near and dear to me. I ask a patient to assume—what may prove to be inaccurate in the case now for discussion and decision—that my diagnosis is right, and that he has an ulcer in the stomach or in the duodenum. The relative advantages of medical or surgical treatment are then to be considered.

In all the cases that come for judgement symptoms have been present for years. During the last ten years the average duration of symptoms has been seven and a half years in cases of duodenal ulcer (excluding the perforation cases, when the duration is shorter), and nine and a half years in cases of gastric ulcer. Every patient has been treated by a medical man in one or in many of his "attacks"; medical treatment has helped greatly to relieve the pain and to curtail the attacks, but a period of repose has been followed at greater or less length by one of renewed and perhaps fiercer activity. Medical treatment, then, has failed in its essential aim, the permanent healing of the ulcer. And there is some reason to fear that it will inevitably fail in a majority of the cases. Anyone who knows the appearance which a chronic ulcer of the stomach or the duodenum presents at the time of operation will realize how considerable an event it must be for sound healing to take place, and how prone the large and deep scar which so results may be to break down under a provocation that the normal stomach would perhaps easily resist. That healing does sometimes take place is shown by the discovery of sound firm scars in the *post-mortem* room. It is evident that to ensure complete cicatrization of the ulcer the greatest care must be exercised from the first, and be scrupulously and unremittingly continued over a prolonged period.

The medical treatment of these conditions is too often haphazard and perfunctory. So far as hospital patients are concerned I think it is hardly possible to ensure that they shall receive adequate treatment over a sufficiently long period. No hospital can afford to keep them as in-patients, and as out-patients they prove careless, and are unable to observe, or wilfully disregard, the instructions as to rest and diet that are given to them. In private practice few patients seem willing to surrender themselves whole-heartedly to treatment, and especially to what appears to be a wearisome prolixity of supervision long after symptoms have completely disappeared. I should suppose that a great many weeks in all cases, and perhaps many months in some cases, must be passed in bed, on a restricted diet, appropriate drugs being duly administered, before an ulcer with a large surface, a deeply excavated crater, and a hard unyielding edge, can have any chance to heal.

It is important to remember that the subsidence of symptoms often noticed very shortly after treatment has begun does not indicate the healing of the ulcer; for every surgeon knows, as I have said, that in operating after an "attack" has subsided, an open ulcer crater may be found. Treatment must therefore continue long after all pain has disappeared. In the operation I sometimes practise for irremovable gastric ulcer—that is, gastro-enterostomy combined with jejunostomy—the patient is fed through a tube which passes directly into the jejunum, and no smallest quantity of food, solid or liquid, is given by the mouth. The healing of the ulcer is watched by screen examination with the *x* rays. It is always very slow—it has varied from six months to three and three-quarter years. A longer period, we must suppose, will be demanded if food even of the blandest kind is taken by the mouth, for the contact of food with the raw surface of the ulcer, the retention of particles of food in recesses of the crater, and the active movements of the stomach, especially if the ulcer is adherent, are all incidents likely to retard the deliberate processes of healing.

Before treatment begins a general survey of the patient must be made, especially in reference to the existence of sources of infection in the mouth and the accessory sinuses. I never operate upon a case of gastric or duodenal disease until the dental department is satisfied that there is no infection remaining in the mouth; a great deal may require to be done before this result is assured, but whether we regard the risk of the anaesthetic or the diet after operation, it is a most essential preliminary.

Most of the "systems" of medical treatment have as a very essential part the administration of alkalis. The "Sippy" method includes the frequent administration of alkalis by the mouth, and the practice has been carried to an extreme which in a very few instances appears to have been harmful. It is interesting to note that in nearly 50 per cent. of our proved cases of gastric ulcer the Rehfuss chart has shown a subnormal curve, in nearly 35 per cent. a normal curve; in only 5 per cent. was hyperchlorhydria present. Has the practice of the administration of alkalis originated in a desire to neutralize the "acidity" of which the patient sometimes complains, although it may chance that he has an amount of free hydrochloric acid less than the normal? Or is it based upon the chemical examination of the stomach contents of patients who are only said to have "gastric ulcer," and not certainly known to have one? The great discrepancy which exists between the alleged frequency of gastric ulcer in practice and the known rarity of the disease upon the operation table is a reason for accepting the diagnosis with most cautious hesitation in large numbers of cases. If that hesitation is justified, much of the medical treatment of "gastric ulcer" is being applied to quite different diseases. I would like to ask whether an "acid" treatment of gastric ulcer would not be more rational than an "alkaline" treatment. The cells of the gastric mucosa are born, live, thrive, and, in due course, perish in an acid medium. In cases where a gastric ulcer has been proved to exist a diminished acidity is far more common than an increased acidity. If the result of the administration of the alkali is to provoke a later acid response (this is certainly true of sodium carbonate in particular) then the treatment is rational; but this, I understand, is not the ground upon which the alkaline method is based. And I would further ask why the medical treatment, including the giving of alkalis, is the same in cases of duodenal ulcer as in cases of gastric ulcer. The chemical conditions in the two diseases are quite dissimilar.

Value of Medical Treatment.

The position with regard to the value of medical treatment appears, then, to be as follows:

I.

Medical treatment, scrupulously undertaken, will almost invariably and with great rapidity cause an alteration in the gravity of the symptoms; the patient will quickly lose the severe pain from which he has suffered, and will begin to wish for, and find himself freely able to take, those simple foods which are most easily digested and easily propelled. The "attack" may be brought to an end within a very few days in the case of duodenal ulcer, and within two or three weeks even in the case of those most recalcitrant gastric ulcers which have intermittently caused symptoms for many years. So far as I have been able to tell from an examination of the specimens removed by operation symptoms disappear as soon as an ulcer shows any evidence of healing; the ulcer, though still large and unhealed, becomes "latent."

Medical treatment must, however, necessarily be carried out, not only in ignorance of the exact conditions present in any ulcer, for not even the most expert radiologist can tell us all that we are eager to know, but also in ignorance of the associated and possibly causal infections present within the

abdomen. In this series of 718 cases I have removed the appendix 307 times, and the gall bladder 23 times. In more than 50 cases the gall bladder, or the appendix, or both, had been previously dealt with by operation. In many of the cases in which I have removed the appendix I have felt that its obvious and sometimes gross disease antedated the development of the ulcer or ulcers in the stomach or duodenum, and I have consequently regarded it as a primary source of infection. An occasional case has seemed to give support to the view of Arbuthnot Lane, that the colon plays a part in the causation of gastric disease; and in a few cases the very loose and overfull ascending colon has tempted me to follow the practice of Waugh and to fix this part of the bowel by his method to the posterior abdominal wall.

The interrelationship of abdominal disease is, as yet, rather a matter of confident surmise than of certainty. The tenacity with which some surgeons hold their extreme views upon this subject often seems in little proportion to the evidence they adduce in support of them. Convictions masquerade as truths. The strength of a man's conviction may display only the defect or weakness of his knowledge. Our acquaintance with the so frequent associated disease in the appendix, with the mimicry of the symptoms of ulcer by a diseased appendix, with the "pyloric blush" which is caused by a lymphangitis spreading to the stomach from other parts, with Wilkie's work on retrograde embolism in the omentum, with Braithwaite's on the lymph drainage of the ileo-colic angle, and so on, leads to a realization of the truth that medical treatment can do nothing to inform us upon many of the relevant matters which it is most desirable, indeed essential, that we should know. If it is necessary to clear away oral sepsis before commencing medical treatment, it cannot surely be a matter of negligible importance to allow the persistence of any infective lesion within the abdomen; for this, too, may be a primary or at least a contributory causal agent. It is therefore as a method of temporary solace, of postponement of discomforts or of impending dangers, rather than as a means for our enlightenment or for the cure of the patient, that medical treatment claims our appreciation, and on these restricted grounds it most warmly merits all that we can find to say in its favour.

II.

Medical treatment, however loyally followed during an "attack" and for weeks or months after the symptoms have passed away, seems quite powerless to prevent recurrence of symptoms in a very large number of cases. So far as the patients who come to hospital are concerned the constant feature in their clinical history is the presence of "attacks" followed by periods of remission. In my present series there must be not less than one hundred patients who have submitted to a series of "treatments" involving rest in bed from four to six weeks on more than two occasions; there is not one who has not had medical treatment on several occasions, and, weary and disheartened, many of them turned only at a late hour to a surgeon for relief. A very distinguished surgeon has said that he rarely operates upon a patient whose ulcer has not been "cured" nine times. The cure which follows such treatment may last from a few months to a few years. There must be cases in which a recurrence never takes place, but although I have made a long search which cannot be called desultory among many patients, I have not met with half a dozen of whom this can truthfully be said. And the discovery of the scar of a chronic ulcer in the stomach or duodenum of a patient during the performance of an operation for disease elsewhere in the abdomen is excessively rare, as all surgeons know.

In the "recurrent attacks" the catastrophes which we dread so much may make their sudden appearance. If haemorrhage occurs we may be gravely perplexed as to what it is best to do. If we adopt medical treatment, rest in bed, abstinence from food, administration of an alien serum, intravenous injection of calcium chloride, or the direct transfusion of blood, the haemorrhage may be arrested and the patient recover sufficiently to brave the risks of operation. But in spite of all that can be done, or indeed before there is a chance to do anything, the patient may die. Last year I was consulted by three patients suffering from duodenal ulcer, all of whom had undergone prolonged medical treatment. Because of family or weighty business reasons they all desired to postpone operation. If I am asked in such cases to sanction delay I protest that I am a surgeon, not a prophet, and that I cannot foretell the risks that lie ahead and may be imminent. The three patients died of haemorrhage before any surgeon had the chance to help them. If I am to find three patients who have died under my care after operation I have to go back many years and search nearly a thousand records.

With the help of Professor M. J. Stewart I have obtained a record of the cases of gastric and duodenal ulcer which have died in the Leeds Infirmary in the years 1910 to 1921 inclusive. Of gastric ulcers there were 75 in which death was due to haemorrhage or perforation and peritonitis. These grave catastrophes may occur in connexion either with "acute" or with "chronic" gastric ulcers. There were 61 deaths from perforation—in 60 cases the ulcer was of the chronic type, in one it was acute. There were 14 deaths from haemorrhage—in 13 cases the ulcer was of the chronic type, in one it was acute, and was a terminal condition in a case of advanced cardiac disease; the haemorrhage was not the only or chief cause of death. Deaths from these emergencies occur, therefore, comparatively rarely in cases of "acute" ulcers. It is the chronic ulcer in an acute phase that at last bleeds or perforates, and causes death. The patients with this type of ulcer have, almost without exception, undergone treatment not once or twice only, but many times. It is true that the treatment has often been brief, and that it has ceased rather in consequence of a patient's negligence than because the medical attendant had sanctioned its omission. The warning to every patient that the checking of the symptoms does not mean closure of the ulcer is very necessary.

During the same period there have been 129 cases in which death was directly attributable to haemorrhage from a duodenal ulcer or from perforation. There were 12 deaths from haemorrhage; in all the ulcer was of the chronic variety. There were 117 deaths from perforation. In 12 of these there was an acute ulcer; in 4 of the 12 chronic ulcers also were present, and in each case it was the chronic ulcer which had perforated, the acute ulcer being merely incidental. In the remaining 105 cases the ulcer or ulcers were of the chronic type. Perforation, therefore, is found here also far more commonly in cases of chronic ulcer. A full clinical history is not always to be obtained, for even nowadays patients are brought in a moribund state to the hospital two, three, or four days after the catastrophe has occurred. But the records show that the very great majority of patients had undergone treatment, for longer or shorter periods, on a number of occasions. The full mortality of surgery is known, but all is not yet disclosed of the death rate among patients "cured" of their attacks who die months, or it may be years, later in the acute emergencies from which there is no time to rescue them.

III.

In cases of gastric ulcers treated medically we cannot afford to neglect a consideration of the problem of carcinomatous degeneration at the edge of a simple ulcer. Opinions upon this mattter appear to be irreconcilable, in consequence, I believe, of different aspects of the total volume of evidence being alone considered by each of the contending parties. I can only speak of cases that I see, and these are, of course, largely, but by no means exclusively, a very special group in which all efforts other than those a surgeon can make have been exhausted. I operate upon rather less than half the cases sent for operation, so that I may lay claim to some knowledge of cases that are labelled "medical."

Of the cases of cancer of the stomach that I see upon the operation table a steady average of two out of three give a past history that is extremely suggestive of gastric ulcer. That such a history is apt to prove fallacious or misleading no one knows better than I do, but before I admit the history as probably indicative of ulcer I sift it very carefully and discount it as much as possible. In some such cases an ulcer, apparently of the usual chronic type, may be found at the time of operation. No slightest suspicion may be entertained as to its malignancy from any naked-eye examination that is made. Under the microscope early malignant changes at one edge only of the ulcer are found. This has been the case in 18.5 per cent. of the supposed chronic ulcers. In other cases a chronic simple ulcer is seen, one edge of which is thickened, upraised, red, and softer than the normal rigid, steep or overhanging edge. This part shows carcinomatous changes. In one case there were two such patches at opposite edges; one showed columnar carcinoma, the other scirrhus. Again, there are cases of duodenal ulcer where the symptoms are often unequivocal and persistent, on and off, for years, in which a new and more formidable menace has lately appeared. At the operation a very old duodenal ulcer is seen

to have lately transgressed the line of the pylorus, and the gastric edge of the ulcer is found to be malignant.

In a long series of cases of gastric ulcer treated by gastrectomy, in which the pathologist has reported an absence of malignant disease, two patients have died of "recurrent" cancer with growth in the stomach or its glands, and the liver. Ulcers of the stomach, we are told, which exceed a certain size, roughly 1 inch in diameter, are always malignant. Does this mean that a simple ulcer never grows so large, or that a simple ulcer of such a duration as to grow to such a size inevitably degenerates to malignancy? When resection of the stomach is performed for frank carcinoma of the stomach, plain for anyone to recognize, the disease will probably have invaded a large part of the stomach. Every trace of an original chronic ulcer, if such there were, will then be overlaid by growth and be quite unrecognizable. If patients die of carcinoma of the stomach without operation the disease will be so advanced that there is little chance to discover any evidence of earlier disease. On the question of the incidence of cancer in ulcer *post-mortem* evidence is therefore of the slenderest value. It is in the examination of specimens of gastrectomy performed in the early stages of carcinoma that the only trustworthy evidence can be obtained. Is there any surgeon who finds that cases of this type are sent to him too early?

I do not profess to give any figures, but the cumulative effect of the evidence I have offered makes me acutely anxious as to the destiny of any patient suffering from gastric ulcer. If we regard the change from a simple disease to a malignant one as possible, even if infrequent, the method of gastrectomy in cases of chronic gastric ulcer clearly has advantages which no other operation can claim. Its mortality is much less than the mortality from that form of cancer of the stomach which proves fatal after gastro enterostomy alone has been done for the supposed simple chronic ulcer in which the cancer has already started to grow, or in which it grows later when the ulcer refuses to heal. It is perhaps worth while to recall the fact that the real chronic ulcer is a rare disease. If gastric ulcer is considered a common disease—if, that is, the clinical diagnosis alone is accepted—the proportional incidence of carcinoma among such cases is certain to be very small.

IV.

Finally, the question may be asked whether, in the case of a gastric ulcer, medical treatment does in truth often attain its paramount object, the permanent healing of the ulcer. The answer is not so simple as it may seem. Before we can give that answer we must know, of any case—first, that an ulcer has without doubt been present, and the evidence of this must not be merely clinical; secondly, whether a radiological examination which confirmed the diagnosis now shows that the ulcer is healed; and thirdly, that the healed ulcer has not broken down again some months, or years, later. Is this evidence forthcoming even in a small number of cases? Of the supposed healing of a fictitious ulcer we have abundant evidence; but of testimony that fulfils the essential conditions I have mentioned there is almost none. Yet I most respectfully submit that if it is claimed that medical treatment can lead to the healing of an ulcer in the stomach nothing less than this degree of proof ought to be offered for our consideration.

The dangers of medical treatment, therefore, are very formidable. The mortality is far greater than with surgical treatment. It is probable that only the most serious cases are submitted to operation, yet the number of deaths occurring after operation is quite insignificant compared with the number of those who die without the chance of benefit by surgery. The deaths which occur unhappily with such great frequency from haemorrhage or from perforation, whether patients are operated upon as the twelfth hour is almost striking or not, are deaths which have not been prevented by the medical treatment, which almost all the patients have had intermittently for months or years. A patient is just as dead if he dies after medical treatment as he is when he dies after surgical treatment. If he dies after an operation surgery will probably get the blame, and may occasionally deserve it. If a patient suffering from a gastric or a duodenal ulcer is treated medically on one or numberless occasions and dies from haemorrhage or from perforation, such treatment must take the blame for its failure to prevent a fatal termination. The mortality is the mortality of medical treatment just as certainly as the mortality following an operation is the mortality of surgical treatment.

If, therefore, the physician claims these cases as "medical" rather than "surgical," it is his plain duty to recognize that, whether we regard the risk to life, or the continual return of suffering, medical treatment is at present a far less effective and definitely more dangerous undertaking than any operation which the surgeon may practise. I say this not to encourage the physicians quickly to relinquish these cases to the surgeon, but rather to suggest that medical treatment should be raised to a general level of efficiency and of safety corresponding to that which surgical treatment has now reached. The occasional discovery of the scars of chronic ulcers of the stomach or duodenum in the *post-mortem* room makes it probable that even the most obdurate ulcers can sometimes be induced to heal, and perhaps to remain long healed.

SURGICAL TREATMENT.

The operative treatment of chronic gastric ulcers has passed through many phases, and there appears to be little chance of general agreement upon this matter even at the present time. The operation first to be practised was gastro-enterostomy, and in a very large number of cases the results have been good. But to satisfy the demands which the surgery of to-day must be fully able to meet, the results have not been good enough. A reference to the table of gastric analysis will show that in rather more than half the total number of cases there is a little delay in the emptying of the stomach. It is now well known that an ulcer on the lesser curvature of the stomach, far away from the pylorus, may be associated with so considerable a degree of spasm at the pylorus that the gastric contents are unable to escape at the normal rate. In such cases gastro-enterostomy will permit of easier drainage of the stomach, and according to its advocates will "give rest" to the ulcer. The objections to gastro enterostomy, however, outweigh all its trivial advantages. The simplicity of the operation is one of its greatest dangers; for the operation is practised far too frequently by inexpert surgeons. It is performed when no ulcer is present, the lesion primarily responsible for the gastric symptoms being overlooked; it is performed in place of more appropriate operations, and is followed perhaps by temporary relief, when they would result in "cure"; its performance, in the hands of some of its warmest advocates, has a mortality as high as that of more radical operations, and is followed in too large numbers by the development of cancer in the ulcer which the operation fails to remove. The operation is believed to have a "physiological" effect, and this is supposed to have a beneficent influence upon the healing of the ulcer; no adequate evidence has ever been offered that tempts me to indulge my credulity so far as to accept either of these fictions. Gastro enterostomy acts mechanically and in no other way.

The operation has been combined with excision of the ulcer, or, as by Balfour, with destruction of the ulcer by cautery. Clean excision of the ulcer by the knife appeared to be a method full of promise. I practised it many times, and discarded it in consequence of the large proportion of cases in which the ulcer recurred. Balfour's operation has the great advantages that it destroys the ulcer completely, and that it destroys also, because of the selective action of heat upon the cancer cells, any early malignant degeneration that may have set in at the margin of the ulcer. Balfour, whose opinion always carries great weight, has pleaded for this operation with eloquent cogency (*Annals of Surgery*, 1921, lxxiv, 448), and all those who practise it at the Mayo Clinic are well satisfied with it. I practise it very rarely, reserving it exclusively for ulcers of small size high up on the lesser curvature, associated with pyloric spasm and gastric retention. Ulcers in this position are sometimes most inaccessible, and are apt to form adhesions to the pancreas or any near structure. The removal of them by gastrectomy would mean that the whole stomach would be sacrificed—a grave measure out of all proportion to the needs of the case. I therefore in such instances choose either Balfour's operation, or more often and by preference the method of gastro-enterostomy in Y combined with jejunostomy. This latter method has been most valuable in cases of extensive indurated inaccessible ulcers, firmly grown to the diaphragm or liver or pancreas. In such cases, especially if haemorrhage has occurred, or if there is a profound degree of inanition, a resection of the stomach would be sometimes impracticable, and always a most formidable or highly dangerous procedure. The complete rest to the stomach which the operation of jejunostomy affords gives fullest opportunities to the ulcer to heal. An examination by the radiologist from time to time will show that, unhappily, the

healing of the ulcer even in such conditions is a most tedious and protracted process.

The operation that I regard with the utmost confidence as thoroughly satisfactory for the great majority of cases is gastrectomy. There are very few cases in which it cannot be performed. It is safe to a degree that one could hardly expect. In the ten years the mortality has been 1.6 per cent., a shade lower than the lowest published death rate from Balfour's operation. The results in my hands have been excellent. I have had the following unsatisfactory experience in connexion with it: One patient has died of cancer of the stomach over five years after the gastrectomy had been performed; a second patient developed cancer of the remaining part of the stomach two years later. These two are examples of mistaken diagnosis, both clinical and pathological. One patient had to submit to a secondary operation on account of obstructive vomiting; a long loop had been left between the duodeno-jejunal flexure and the anastomosis of the bowel with the stomach. This patient subsequently made a perfect recovery. One patient from whom I removed a group of tuberculous mesenteric glands at the time the gastrectomy was being performed has had a second operation and another group of glands has been removed; this operation was done three months ago and the patient has since gained 15 lb. in weight. That is all that I can find to bring against the method of gastrectomy. No other operation gives such admirable and uniform results. I have greatly simplified its performance by introducing the "anterior no-loop" method. The jejunum is brought from the flexure across the transverse colon from left to right and applied to the divided stomach so that the proximal part of the jejunum joins with the greater curvature. This method has been followed in every case since June, 1920; there has been no death, and not the slightest untoward symptom at any time after operation, early or late. There has never been a recurrence of ulceration (apart from the two cases of carcinoma mentioned above); there has been no return of dyspepsia; there has been no sign of persistent or profound anaemia in any case in this series.

I feel, therefore, that I can justly excuse myself for not performing gastrectomy only when the condition of the patient prohibits any major operation, or when the location of the ulcer, or any other of its attributes, renders the operation quite impracticable or disproportionate to the needs of the individual case. And so far as the condition of the patient is concerned I feel fairly confident that by the most watchful care, by the performance of direct transfusion of blood once or oftener, and by the copious administration of glucose, with and without sodium carbonate, so great an improvement may by degrees be brought about that any operation that is required may safely be performed.

After all is said and done, that operation for the treatment of chronic gastric ulcer will alone survive which with the smallest risk brings about a complete subsidence of all symptoms, a permanent freedom from any recurrence of the like disease, and immunity from any disorder associated with the operation in consequence of its mechanical or physiological effects. The operation which seems destined to fulfil all these indications is gastrectomy.

How is it that the surgical mortality is so low? The patients who come for operation are often very ill; they have suffered for years; obstruction with grave inanition may have resulted; and haemorrhage on one or many occasions may have sapped their strength almost to exhaustion. It is a question of taking pains. I once heard a very distinguished surgeon say that no one could continue to operate upon even simple cases such as inguinal hernia without mortality; one or two might die in every hundred. If this view is taken, the practice of the surgeon will justify and sustain it. But if you deal with cases as units, and say, "The last case may yet die, and the next case be a desperate one which no man can save, but *this case must not die whatever happens*," you will find your practice will go far to vindicate your determined optimism and your confidence. The units saved swell into multitudes. Surgery, after all, is an affair of the spirit; it is a fierce test of a man's technical skill sometimes, but in a grim or long fight it is above all a trial of the spirit; and there are few things that cannot be conquered if a man's heart is set on victory.

The lecture was illustrated by a number of lantern slides, many of which were kindly lent to me by Professor M. J. Stewart, to whom I am greatly indebted not only for this kindness but also for the preparation of the statistics I quote from the records of the *post-mortem* department of the Leeds General Infirmary.

An Address

ON

SLEEP AND SLEEPLESSNESS.

DELIVERED TO THE DORSET AND WEST HANTS BRANCH OF THE BRITISH MEDICAL ASSOCIATION,

BY

W. JOHNSON SMYTH, M.D.,
BOURNEMOUTH.

SINCE coming to Bournemouth twenty-five years ago my professional work has chiefly been concerned with patients in the middle and later periods of life. Of these I believe the majority have presented certain decided defects in their nervous system—organic or functional. Of their troubles by far the most frequent has been the symptom of insomnia, and I hope you will bear with me when I place before you certain well known physiological facts.

SLEEP.

Sleep is a mysterious phase of all living things, animal and vegetable. Its causation in man remains an unsolved problem, and therein lies the fascination of the pursuit of a study so important, for in a true comprehension of its causation must ultimately lie a scientific understanding of insomnia and its treatment.

The question of sleep has interested men of all ages. Scripture teems with reference to sleep. Poets have sung its praises, sculptors and painters have found it a fitting setting for beauty; the classical writers—Sophocles, Horace, and Ovid—all but worshipped it; nor did Aristotle nor our own Shakespeare pass it by in silence.

Under normal circumstances we spend roughly one-third of our life in sleep. It is a normal condition of the human body occurring periodically, in which there is a greater or less degree of unconsciousness due to inactivity of the nervous system, and more particularly of the brain and spinal cord. It may be regarded as the condition of rest of the nervous system, during which there is a renewal of the energy that has been spent in the hours of wakefulness, for in the nervous system the law holds good that periods of physiological rest must alternate with periods of physiological activity, and, as the nervous system is the dominating mechanism in the body, when it reposes all the other systems participate in a general condition of rest.

In all vital phenomena rest alternates with activity. The heart muscle as well as the secreting gland has each its period of repose. Nervous action involves physico-chemical changes of matter and the loss of energy. This is true even of the activity of the brain in connexion with volition, perception, emotion, sensation, and so on, so that the higher nervous centres require rest during which they are protected from the stream of impressions flowing in from the sense organs; this permits of the elimination of waste products and the recuperation of cerebral structure so as to fit it for further mental activities.

Time of Sleep.

Most people sleep during the night. The silence of the night and other circumstances co-operate to bring this about. But the advent of sleep does not necessarily depend on terrestrial phenomena—but rather on bodily conditions. Some animals sleep during the day and prowl about at night; some persons have to perform night duty and sleep in the day; bodily fatigue is the main factor in determining the time of sleep.

Just as the sensation of hunger is referred to the stomach, thirst to the throat, and breathing to the chest, so sleepiness is referred to the region of the head and neck. A sensation of weight occurs in the eyelids, spasm of the hyoid muscles causes yawning, and the head droops. A gradual obscuration of the intelligence, depression of general sensibility and special senses, with general muscular weakness, follow—and "Nature's soft nurse steeps our senses in forgetfulness."

Sleep having supervened, there are gradations in its completeness. It may be so light that the individual is partly conscious of external impressions and disordered trains of thought. This is the dream state. On the other hand, sleep may be so profound that all psychical phenomena are abolished. The first couple of hours are those of most perfect sleep. As the state of awakening approaches, sensibility becomes more acute, and external impressions are

faintly perceived, together with a sense of pleasant repose and abandonment.

The physiological changes are briefly: Slowing down of respiration, circulation, and glandular activity. The pupils contract, the eyeballs roll upwards, and the blood pressure and body temperature fall. A man of 147 lb. produces 40 calories of heat when asleep, but 112 if awake. Knee-jerks become dull and may disappear, peristaltic movements diminish, hearing and sense of smell disappear, and sensory phenomena generally fall to zero. During sleep we tend to get fat, hence the saying, "He who sleeps dines." Children require more sleep than adults. During their pre-natal existence ample sleep for the mother is absolutely necessary.

The changes in the cerebral circulation merit special notice, and here it must be noted that since the classical experiments by Durham of Guy's Hospital in 1860 no great progress by direct observation has been made, apart from the experiment of Mosso. Durham trephined a dog's skull and inserted a watch-glass and made observations during sleep, as follows:

1. The veins were not distended.
2. The brain appeared to be in a comparatively bloodless condition.
3. The actual movement of the blood was slowed down.
4. Whatever increased the activity of the blood flow in the brain tended to produce wakefulness, and whatever tended to reduce it encouraged sleepiness.
5. Exciting ideas and sensory impressions, with or without stimulation of the heart, increase the pace of the blood flow and wakefulness.

In 1881 Mosso made observations on three persons, each of whom had lost a piece of the cranial vault. One was a man of 37 years, one a woman of the same age, and a third a child of 12 years. By means of the plethysmograph, which he invented, he obtained tracings showing changes in the volume of the hand and forearm, and he succeeded in showing that during sleep there is a diminished amount of blood in the brain and at the same time an increased amount in the extremities. Further, he showed that by stimulating the skin—short of waking the sleeper—a contraction took place in the vessels of the hand and forearm accompanied by a rise of blood pressure, acceleration of the blood flow in the brain, and quickening of the heart's beat.

Such have been the observations dealing with the brain during sleep. They are of great value, yet they do not explain sleep, and the conditions observed are considered to be concomitants of sleep—they predispose towards sleep rather than cause it.

A distinguished Cambridge don defines sleep as a "withdrawal from the conflict of the world, and a temporary regression to the uterine stage." Michael Foster defines sleep as a "blank and a gap in the history of the mind." This is perhaps its best definition, if an old one. There are many theories advanced to explain how this blank and gap become established. Here are the most important:

Duval says the dendrites of the brain cell retract and break contact with the terminal afferent nerve endings that normally convey impressions from without. This is the electric theory of sleep.

Pieron says sleep is due to a toxin formed in the central nervous system during waking hours. He kept dogs awake for 300 hours, and injected fluid he found in the fourth ventricle into other dogs and produced a state of sleepiness in these animals.

Pryer imagined that sleep is due to sarcolactic acid formed during the activities of the day. This theory is unsound, as the injection of the acid does not produce sleep.

Fluger says that sleep is due to the exhaustion of intracellular oxygen due to its expenditure being greater than its intake—that, in fact, sleep is a real cerebral asphyxia.

Howell of Baltimore[1] has advanced the theory that the vasomotor centre in the medulla has during the day's activities kept up the general arterial blood pressure sufficiently to supply the active brain's demands. Towards the close of the day the fagged centre is stimulated less and less, because of the hush of the day's general excitement and the quiet associated with night, so that a gradual fall of blood pressure supervenes, especially in the brain, anaemia of the cerebral vessels follows, and sleep is induced.

This ingenious theory, known as the anaemic theory, may explain how the anaemic appearance of the brain during sleep comes about; but it does not prove that sleep succeeds anaemia. Indeed, we know that great loss of blood, with cerebral anaemia as a consequence, is not necessarily followed by sleep.

What, then, explains the precipitation of sleep? Is it not safe to affirm that sleep ensues when the brain cells are unmolested by psychic or peripheral stimulation, and when their substance is saturated with chemical contents that make for cerebral repose, or dispossessed of substances that ordinarily stimulate their activity?

To make a list of psychical and peripheral stimulants would be difficult, but one may mention the tempests that sweep over the mind, such as the feelings of sorrow, fear, hate, rage, love, sense of worldly and spiritual loss, to name only a few. Of peripheral stimulants one must mention those of pain felt, or the silent but none the less forceful impulses that, unknown to our perceptions, stream onwards to the brain by way of the afferent nerve paths of our sympathetic nervous system, from pelvis, abdomen, and thorax.

As to the second factor—"the saturation of the cell contents with substances that make for cerebral repose," or the "exclusion therefrom of substances normally maintaining its activities"—others have pointed out the possibility of carbon dioxide, the absence of oxygen, the presence of lactic acid, the toxins of Pieron.

I would ask, Do the endocrine glands play a part in influencing the action of the brain cell? Take, for example, the positive effect of thyroid secretion. This causes increased oxygenation of body tissues generally, a fall in water and fat cell contents and an increased urea excretion, whilst in excess we notice palpitation, headache, and glycosuria. Such a fluid acting on the brain cell may well be expected to quicken its activities and maintain general "wide-awakeness." In myxoedema, where the thyroid fluid is absent or nearly so, we have a condition of drowsiness and torpor.

We know that as the night approaches secretory glands diminish their output, so it is possible that the brain cells tend towards a state of repose owing, *inter alia*, to the fact of the lessened supply of the thyroid fluid which we may assume occurs at night. Again, let us remember Cannon's researches into the action of the adrenal glands—their stimulation by fear, anxiety, etc.—and how, with an increased tide of adrenal secretion the sympathetic nervous system becomes in turn stimulated.

I shall not press a theory suggested by these considerations, and, leaving behind the speculations concerning the causation of sleep, will approach the subject of sleeplessness. Here at any rate we know that we can establish the condition artificially by quickening the activities of the brain cell by psychic influences, chemical stimulation, or peripheral irritation conducted by afferent nerve fibres, vegetative and other.

Sleeplessness.

Sleeplessness is always a human tragedy—great or small according to its severity. Surely it brings about the "winter of man's discontent," when not only does thinking aright in the end become impossible, but physiological processes are slowed down and often perverted or arrested.

A historic instance of sleeplessness through a troubled mind is recorded in the case of Maecenas, minister of the Emperor Augustus—a philosopher, an Epicurean, patron of Horace and Virgil, once the happiest of men, he disclosed certain state secrets to his wife, who gossiped about them, and through a sense of disgrace sleep completely departed, and, worn out, he ended his days, some authors say, by suicide. Sleeplessness through physical pain is illustrated in the case of Philoctetes. This hero of the Trojan wars was stranded on the island of Lemnos, where his foot was bitten by a snake, or wounded by a poisoned arrow. He was discovered in rags and distress by friends after some years, and, according to Sophocles, had sleep restored by the god of sleep in answer to the prayers and rhapsodies of the chorus.

Shakespeare evidently suffered from sleeplessness, and described the horrors of insomnia through the mouth of Henry IV, whose apostrophe of sleep (*Henry IV*, Part II, Act III) is perhaps one of the most beautiful pieces of writing in the English language. Our own great poet Wordsworth was a martyr to sleeplessness. And one might go on giving instance after instance of wrecked lives, blighted careers, world policies altered, and millions of lives rendered cheerless because of it.

There are few, if any, human ailments requiring so fine a comprehension of our patient's individuality, his physique and surroundings, as the condition of insomnia. I will not press for an inquiry into his pre-natal history, nor into hereditary predisposition to insomnia, but I believe we ought at least to make some inquiry into his past medical history, as well as a very careful medical examination of the principal organs. It may be that such a survey reveals physical defects due to nutritional derangements, it may be endocrine gland defects, and so on. These conditions we correct if possible.

In a case of insomnia our procedure may be simple enough, but it may, on the other hand, involve much patience and the exercise of considerable self-confidence and analytical powers of no mean degree.

In the light of present-day knowledge we may assume that the area of conflict and unrest is in the cerebral nerve centres. When these centres are unstable through inherited defects we must regard the case as capable of only partial relief, whether our remedies be psychological, physical, or chemical. We may discover that a hypersensitive condition of the cortex has been brought about by fatigue, arterio-sclerosis, excessive or diminished blood pressure, toxins or excitants of various kinds—alcohol, tea, coffee, etc. Here, of course, we try to remove the causes. In high blood pressure a hot foot-bath, or a whole body bath with or without mustard dissolved in it, gives considerable relief; mustard packs to the lower limbs and abdomen may draw the blood from the brain and give a good night's sleep; massage with brushing of the body is also of use. In these cases of high blood pressure the condition of the bowel must be carefully watched and constipation prevented. Suitable intestinal antiseptics may be indicated. Where the brain unrest is due to psychic disturbances, such as a sense of loss, material or spiritual, fear, rage, hate, the treatment will depend on the severity of the case and its duration. Generally, a change of air and scene should be recommended before drugs are given.

A stage is reached in a large number of cases of insomnia such as the foregoing in which no external treatment, no change of surroundings, will avail, and we find the patient going from bad to worse, often rapidly. It is in such a case that the psychotherapeutist is seen at his best. If he is a student of comparative religions he may bring solace to the Roman Catholic by encouraging him to repeat certain formulas, by counting beads, and indulging in religious exercises that have a strange but potent sedative action. Patients of the reformed faith may find happiness in contemplating the promises of the gospels, the fatherhood of God, and the brotherhood of man. Others, with or without the religious sense, may find escape from the brain storms by reading books that amused or edified them in the happy days of their youth—a revisiting, as it were, of old intellectual pastures associated with the pleasantest period of life.

It is always wise to reassure such cases. Many are really drifting towards the borderland of insanity, and we must try to arrest in them all sense of fear and despondency. In some cases we advise them to sit up late, play patience, or picture puzzles. Here is a remedy I have found useful: Get the patient to switch on the light and carefully write down on a piece of paper the ideas disturbing him. This often succeeds in breaking up a disturbing train of thought. Auto-suggestion in some cases is invaluable, and hypnosis often breaks the vice if it be not too long established.

Maecenas had a physician, Musa, who, as a remedy for the terrible insomnia of his patient, recommended him to live in a villa close to a cascade. The monotony of the waterfall was the only remedy that enabled the care-worn statesman to get some sleep. Our own Wordsworth had much the same experience.

Most people suffer from insomnia psychic in origin, at some time of life, and, as every man can best fit on his own hat, so most people have a way of their own for dodging unpleasant ideas, and what helps one person may not help another.

We have all, I dare say, met cases of psychic origin where, despite every artifice, the demon of insomnia had the best of it. Then comes the time for judicious drugging and external treatment. For the pressing need of sleep I have found that an hour's gentle massage at bedtime, immediately preceded by 3 grains of veronal and at the end of the massage period 10 grains of aspirin in hot milk, gives good results. Massage sometimes irritates, and when this is so must not be continued. Reading by a nurse is sometimes a fair substitute, provided her voice is soft and manner of reading monotonous.

In cases of weak heart 25 grains of chloralamid in an ounce of brandy may be given instead of the veronal, repeating the dose in three hours if necessary. With all its drawbacks I have found paraldehyde in 2-drachm doses with yolk of egg very effective in bad cases. Others doubtless have found other drugs quite as good.

When the insomnia is due to cerebral unrest originating at a distance from the cortex and with the impulses conveyed thereto by the nerves of sensation or those of the special senses the remedies are obvious. We remove when possible the causes of pain, the sources of cold, heat, sounds, and so on; and of course in actual painful conditions, in cases not complicated with renal or bronchial defects, opium will suggest itself.

A case of insomnia that impressed me greatly was one due to neuralgia of the extremities. Luminal in 5-grain doses was the only drug that not only relieved the pain but gave several hours of refreshing sleep. The drug can be given dissolved in hot water or in a cachet. It is best to begin with doses of 2 to 3 grains and repeat three or four hours later in the night if necessary. Cases of insomnia due to pain require careful watching. Many such patients in time lose the sense of pain measurement, and undoubtedly exaggerate the degree of pain felt in order to get stronger and stronger remedies. It is an unsafe policy to leave drugs likely to poison within the reach of such patients.

For some time I have been interested in Professor Langley's researches into the sympathetic nervous system, now known amongst physiologists as the vegetative nervous system. An authority on the subject tells me that he believes that during sleep afferent impulses proceed towards the central nervous system along the vegetative nerve paths, just as they do during wakefulness. We are hardly guilty of forcing our imagination if we assume that herein may be found a new field for inquiry. I submit as a hypothesis that may explain a certain type of cerebral unrest not otherwise accounted for, that, unperceived by the individual, certain impulses from the thoracic, abdominal, or pelvic vegetative nervous system do reach the brain cells and upset the physiological processes there that otherwise would make for repose and sleep. One is the more confirmed in this point of view by remembering how sleep may be brought about by remedies directed to relieve certain thoracic, abdominal, and pelvic conditions in which no actual pain is felt—for example, certain types of heart affections, indigestion, gastric and intestinal in origin, and pelvic irregularities, and so on. Anyone who has studied the calming effects on the central nervous system brought about by correcting the functional diseases indicated must be driven to the conclusion that here we may sometimes find the real cause of disturbed sleep. The phenomenon of nightmare must not be lost sight of in the light of this theory.

It is well to bear in mind that where the disturbance is not due to the nerves of common or special sensation we may find the vegetative nervous system at fault, and if so our prognosis is good. In quinine hydrobromide Dr. Langdon Brown believes we have a drug with specifically sedative action on the sympathetic nervous system.

In the foregoing remarks I have tried to pigeon-hole, as it were, the causes that give rise to sleeplessness. The nerve cells, then, may be disturbed by psychic forces within them, by forces chemical and physical around and penetrating them, by disturbing forces that sweep along the afferent nerves of general and special sensation, as well as those silent and unperceived impulses that proceed along the sympathetic nerve paths. The cell having been disturbed, sleeplessness ensues.

I think a close analysis of the causes of sleeplessness will help us to make fewer mistakes in treating the condition, and at any rate it is worth while to aim at isolating as far as we possibly can the chief factor at work in any given case. Often acting alongside this chief factor may be found other subsidiary and less aggressive influences at work. The latter we must deal with in turn; but the wolf nearest to our patient's heels is the most dangerous, and we will do wisely to destroy him first.

REFERENCE.

[1] *Journal of Experimental Medicine*, vol. ii, p. 313.

INSTRUMENTS LEFT IN THE PERITONEAL CAVITY:

AN ANALYSIS OF 44 UNPUBLISHED CASES.

BY

CLIFFORD WHITE, F.R.C.S.,

SURGEON, SAMARITAN HOSPITAL FOR WOMEN; GYNAECOLOGIST, METROPOLITAN HOSPITAL.

My interest in cases in which solid objects have been unintentionally left in the peritoneal cavity was aroused by having on two occasions to operate for their removal; perhaps I may mention that in both cases the foreign body had been left in the abdomen by someone else. The notes of the two cases mentioned are as follows:

CASE I.

A patient, aged 50, was sent to me because her doctor had found a sharp foreign body in the canal of the cervix. She had consulted

him on account of constant pelvic pain. The history given was that nineteen years before she had had a laparotomy performed, in the country, for a "tumour," but no details could be obtained. Seven years after this she was delivered of a full-time child without difficulty, and had had moderate health except for one attack of severe abdominal and pelvic pain, which subsided under treatment with hot fomentations. The abdominal pain, with nausea and vomiting, gradually increased in severity for several years, and for these symptoms she had a second operation performed in hospital in the country, eighteen months before I saw her. She was informed that the adhesions in the lower abdomen were so dense that nothing could be done, and therefore the operation was abandoned and the abdomen closed. The pain and sickness increased, and six months later an offensive vaginal discharge commenced. There was frequent desire to defaecate, and frequency of micturition.

When I first saw her she looked toxaemic and wasted. The abdomen was distended, and there was a tender mass below and to the left of the umbilicus. A hernia of the old laparotomy scar was present. On vaginal examination a pointed metallic instrument could be felt protruding through the cervix for 4 cm. from the external os. The body of the uterus was bulky, and situated in the middle line. There was a mass on the left of and above the uterus, continuous with the tender area on the abdominal wall. An *x*-ray photograph showed a Spencer Wells haemostatic forceps, with the handles towards the left iliac fossa and the points in the cavity of the pelvis.

It was obvious that any attempt to remove it by traction on the pointed end would lacerate the uterus severely, and possibly also damage the ureters. I therefore opened the abdomen, and was faced by a mass of very dense adhesions. With difficulty I reached the forceps and found that the points had eroded the uterus 5 mm. above the level of the bladder reflection; the handles had eroded the wall of the pelvic colon, and were lying inside the lumen of the gut. The forceps was removed and a panhysterectomy performed, in order to get rid of the infected uterus and to give free drainage to the faeculent abscess that the forceps was lying in. Owing to the large deficiency in the gut wall, and the infiltration of the surrounding tissues, it was difficult to suture the hole in the colon, but finally the edges were united, and it was not thought necessary to do a colotomy. Large drainage tubes were inserted through the vagina and through the abdominal incision.

The patient stood the operation well, but a faecal fistula formed at the end of a week and was still discharging six weeks later. She then commenced to have peculiar attacks of collapse with cyanosis, loss of consciousness, and vomiting. The first attack came on after eating eggs which had been sent to the hospital, and she stated that she had never been able to eat eggs, as they had previously affected her in a similar manner. It was suggested that the attacks were anaphylactic in origin. In one of these attacks the patient died some six weeks after the operation.

This case is interesting because of the extrusion of the forceps through a tough, thick-walled organ like the uterus, and I have found no record of any other case in which this happened. It is also uncommon because of the long period that the foreign body remained in the peritoneum. It must have been left there either eighteen months or nineteen years before, and the longer time is suggested by the history that the pain persisted and increased after the first operation and was unchanged by the second, and also by the existence of dense adhesions at the second operation.

CASE II.

The second case was one in which a bone penholder was passed into the vagina by a patient who was unable to withdraw it. It remained in the peritoneal cavity from the morning of January 2nd until the afternoon of January 5th, 1915. Even under anaesthesia no scar could be found in the vaginal vault, or on the fundus of the uterus when the abdomen was opened. The penholder, with the ink stains still showing well, was found entirely wrapped up in omentum. I ligatured off the omentum containing the penholder and closed the abdomen. The patient made an uninterrupted recovery.

In discussing these two cases with my colleagues, I found that few of them had had experience of a similar accident, nor could I find much about it published, except one very valuable article by Crossen, and a few cases that had been published because they had given rise to legal proceedings.

In considering a question like the present, where negligence on someone's part comes in, it is obvious that the great majority of cases that are not the subject of legal action will never find their way into the literature at all. To get details of the unpublished cases I sent inquiries to surgeons in all parts of Great Britain. No names were asked for, but in order to obtain full, although anonymous, records, I posted printed inquiry forms with printed reply envelopes.

I wished primarily to find out what risk there is to a patient if an instrument is allowed to remain for about five or six days in the peritoneal cavity. Such a question may be of importance if the loss of the instrument is not noted until the patient has recovered consciousness or is already suffering from such a degree of shock from the operation that reopening the laparotomy incision may be attended by grave risk, and if it is desired to confirm the diagnosis and locate the instrument by radiography before proceeding to open up the incision. Secondly, I wished to ascertain after what interval of time the foreign body usually commences to cause symptoms, if its loss is not noted. Thirdly, what its usual effect is on surrounding viscera.

Crossen[1] gives a short tabular summary of 50 cases that he collected from the literature from 1880 to 1907. In these 50 cases the articles left behind were as follows: Forceps 41, drainage tubes 3, rings 2, Nélaton catheter, glass irrigator, scissors, "piece of instrument," and pair of spectacles, 1 each. The total of 51 instruments in 50 cases is explained by two pairs of haemostatic forceps being left in one patient.

Many of the cases abstracted by Crossen are incomplete, and essential details are lacking, but an examination of his collected cases shows that some 24 either certainly or probably lived, 13 died, and in 13 the details are inconclusive. The time the foreign body remained in the peritoneal cavity in the cases that recovered varied from a few hours to ten and a half years, but it is of interest that in only 7 out of 24 was the period over one year.

The foreign body was removed by a subsequent laparotomy in 10 cases; removed through a sinus or abscess in 7 cases; passed spontaneously per rectum in 4 cases; removed by colpotomy in 2 cases; and once was found in the bladder. In two of the fatal cases and in four others it was stated that serious damage resulted to surrounding viscera.

In answer to my inquiries, I received details of 39 cases, including a few in which foreign bodies had been passed into the peritoneal cavity either per vaginam or per rectum. There are three specimens bearing on the subject in the museum of the Royal College of Surgeons, making 44 with the two cases already recorded in detail above.

The foreign bodies found comprised 29 artery forceps, 2 retractor blades, 2 glass rods, 2 bone knitting-needles, 2 hairpins, and 1 drainage tube, 1 towel clip, 1 uterine dilator, 1 piece of needle, 1 pin, 1 bone penholder, and 1 stone.

Of the 44 patients 11 died, giving a mortality of 25 per cent. In these 11 fatal cases the foreign body is stated to have been present for the following periods: Several years (3 cases); seven years (1 case); two years (1 case); one year (1 case); five months (1 case); three weeks (1 case); and twice "unknown."

In all cases, except those where the details are wanting, severe ulceration or erosion of the surrounding viscera was present.

Among the 33 patients who recovered cases are included in which the foreign body remained in the peritoneal cavity for seven, twelve, fifteen, and (probably) nineteen years. Of the 33 cases, 26 were treated by a second operation, and in the remaining 7 the instrument was passed through a sinus or per rectum. The operations were performed within a few hours in 5 cases, within forty-eight hours in 4 cases, within a few weeks in 8 cases, and in the remaining 9 during periods ranging from six months to many years.

A consideration of the details of the cases seems to show that, as would be expected, the best result is obtained by an immediate removal of the foreign body, if the patient's general condition will permit of a second operation. But if the loss of the instrument is not noted at once, or if the patient's general condition contraindicates an immediate second operation, there does not seem to be any grave risk in leaving it inside for a few days. A solid metal instrument does not seem to cause the onset of peritonitis so rapidly as a blood-soaked gauze sponge; and a consideration of the cases indicates that the viscera do not suffer any severe damage within a few days. A striking fact is the protective action of the omentum in surrounding the foreign body and shutting it off from the rest of the peritoneal cavity.

The frequency with which this accident occurs came as a surprise to me. I received by post details of 39 fresh cases and fifty-one forms were not returned to me at all, in spite of the fact that I especially asked for the form to be returned with a negative on it and sent a stamped addressed envelope to ensure its remaining anonymous.

It seems reasonable to think that a large proportion of those fifty-one unreturned forms must have given details of fresh cases if their recipients had returned them at all. Again, it should be noted that only surgeons at the larger hospitals were circularized, and if the records of cases operated on in cottage hospitals and naval and military hospitals could be obtained it is probable that the numbers would be again increased.

Most of the cases where any date was given occurred within the last fifteen years, so that my inquiries show that,

roughly, at least 40 of these accidents have occurred in 180 months. It is therefore desirable to consider what can be done to diminish the risk of this accident.

I have deliberately avoided all reference to sponges and swabs, and definitely asked that these should not be included in my inquiry form. But it is worth while emphasizing the protection given by the use of six or twelve yard rolls of gauze for packing off intestines and sponging, instead of using large numbers of small pieces of gauze. In having a large number of swabs counted by an assistant or nurse, the usual margin of human error exists, and this can be avoided and time saved by the use of rolls of gauze as continuous sponges.

Regarding instruments, the same principle can be applied, and the number of instruments in use, especially Spencer Wells forceps, can be reduced to a minimum, an extra supply in a separate package being kept for emergencies. Also, any instrument brought near the abdomen while the peritoneum is open should measure six inches in length, although an exception to this rule must be made in the case of needles.

To conform so far as possible to this ideal I never use towel clips; it is quite easy to fix all towels by two stitches, one at the pubes and one at the upper end of the incision. Again, it is quite easy to fix efficiently the rubber sheeting, towel, or whatever is used to protect the edges of the abdominal wall by pieces of sheet lead, 3 inches broad and 12 inches long, which can be bent round the edge of the wound. This method has long been used by Oldfield and other members of the Leeds school. The use of a Reverdin needle not only saves time but largely reduces the number of small needles in use. A Reverdin needle of suitable shape can be used satisfactorily except at the bottom of a deep wound.

In the Trendelenburg position instruments tend to roll down towards the incision, and the use of an instrument tray (such as that suggested by Bonney) with a large flange will prevent this.

While operating, all haemostatic forceps should be replaced by ligatures as soon as possible, instead of leaving them hanging on the bleeding points at the edges of the wound or within the peritoneal cavity. Any instrument that has loose parts that are liable to become detached should be avoided.

Details of 44 Cases in which Instruments were Left in the Peritoneal Cavity.

In the following list the details are given so far as possible in the words used by the reporters of the case, in the following order: The kind of instrument, the position in which it was found, the nature and date of the first operation, the symptoms produced by the foreign body, the treatment adopted and the condition of the viscera disclosed, together with any note of special interest (for example, the presence or absence of a sinus in the abdominal wall), whenever such details have been reported.

1. Short Spencer Wells forceps. Among small gut. Hysterectomy, several years before. Symptoms unknown. Enterostomy. Gut ulcerated. Whole of forceps lying in cavity of gut. No external sinus. Death.

2. Short Spencer Wells forceps. Laparotomy, several years before. Symptoms unknown. Enterectomy and anastomosis. Gut ulcerated. Whole of forceps lying in cavity of gut. No external sinus. Death.

3. Small Spencer Wells forceps. Among intestines. Ruptured gastric ulcer, many weeks before. Symptoms: Faecal fistula in caecal region. Extraction through fistula. Ulceration of ascending colon. Death from peritonitis.

4. Small Spencer Wells forceps. Partly in peritoneal cavity and partly in bladder. Ovariotomy, five months before. Symptoms like stone in bladder. Laparotomy. Bladder perforated and very dense adhesions present. Point of instrument seen during cystoscopy. No external sinus. Death from peritonitis.

5. Spencer Wells forceps (6-inch). Among small gut. Laparotomy, several years before. Symptoms: Acute obstruction. Resection of gut. Two or three adjacent coils of small gut ulcerated. Ring carcinoma of pelvic colon also found and so colostomy was done at the same time. No external sinus. Death.

6. Artery forceps (5-inch). Among small gut. Gastro-enterostomy, two years before. Symptoms: Pain, increased by taking food. Double resection of small gut. Gut perforated. Instrument detected by radiogram. No external sinus. Death.

7. Spencer Wells forceps. Position not given. Appendectomy. Date, symptoms, and treatment not given. Probably no sinus present. Death.

8. Spencer Wells forceps (5-inch). Among small gut. Ruptured ectopic, three weeks before. Symptoms: Fever, pain. Mass in pouch of Douglas. Resection of small gut. Intestine damaged. No external sinus. Death.

9. Spencer Wells forceps (4-inch). In left half of pelvis, handles pointing downward. Ovariotomy, seven years before. Symptoms: Fever, emaciation. Discharge from faecal fistula in left iliac fossa for six months. Sinus explored and instrument removed. A portion of one handle of the forceps could not be found. Death.

10. Towel clip 3 inches long. Position not stated. Laparotomy, one year before. Symptoms unknown. Found at autopsy. Royal College of Surgeons Museum, 2393 I.

11. Hairpin. Lower abdomen. Possibly passed per vaginam. Symptoms: Pelvic peritonitis. Laparotomy for purulent peritonitis. No obvious damage to viscera. Death. Royal College of Surgeons Museum, 2343 I.

12. Spencer Wells forceps (3-inch). Below umbilicus in middle line. Ovariotomy, six weeks before. Symptoms: Point of forceps palpable through scar. Removal by laparotomy. No damage to viscera. Forceps found wrapped in omentum. No external sinus. Uneventful recovery.

13. Small Spencer Wells forceps. Position unrecorded. Removal of tumour (probably renal), eighteen weeks before. Symptoms: Rectal pain and sinus. Passed spontaneously per rectum. Recovery.

14. Spencer Wells forceps. Upper abdomen. Ovariotomy, several weeks before. Symptoms: Hard mass in upper abdomen. Laparotomy. Adhesions but no erosion of viscera. No external sinus. Recovery.

15. Spencer Wells forceps (5-inch). Pelvis. Salpingo-oöphorectomy, seven years before. Symptoms: Abdominal and rectal pain. Passed spontaneously per rectum. Ulceration of rectum. Recovery.

16. Small Spencer Wells forceps. Pelvis. Panhysterectomy, a few hours before. No symptoms. Removal per vaginam. No damage to viscera. Radiogram taken. Recovery.

17. Artery forceps (5-inch). Among intestines. Caesarean section, forty-eight hours before. No symptoms. Removal. No damage to viscera. Radiogram taken because instrument missed after operation. No external sinus. Recovery.

18. Spencer Wells forceps (7-inch). Upper abdomen. Radical cure of ventral hernia, four months before. Symptoms unrecorded. Enterectomy. Ulceraiton of bowel. No external sinus. Recovery.

19. Artery forceps. Pouch of Douglas. Ovariotomy, six hours before. No symptoms. Removal. No damage to viscera. Instrument missed after operation and palpated by bimanual examination. Recovery.

20. Spencer Wells forceps (9-inch). Pouch of Douglas. Subtotal hysterectomy, seven years before. Symptoms: Pelvic pain. Extraction per vaginam. Ulceration of vagina. Points of forceps palpable on vaginal examination. No abdominal sinus. Recovery.

21. Small Spencer Wells forceps. Pelvis. Ileo-colostomy, six months before. Symptoms: Left iliac pain. Passed spontaneously per rectum. No abdominal sinus. Complete recovery.

22. Spencer Wells forceps. Attached to omentum. Ovariotomy, twenty-four hours before. No symptoms. Removal. No damage to viscera. Loss of instrument noticed soon after abdomen closed. Recovery uneventful.

23. Kocher's artery forceps. Among small gut. Operation for perforated duodenal ulcer, three weeks before. No symptoms. Removal. Suture of bowel. Two inches of instrument lay inside lumen of gut. Instrument only discovered by accident during radiogram of bismuth meal. No sinus. Complete recovery.

24. Spencer Wells forceps (8-inch). Lower abdomen. Hysterectomy, twelve days before. No symptoms. Removal by laparotomy. No damage to viscera. Forceps missed after operation, but patient too ill for immediate search to be made. No sinus. Radiogram on tenth day. Uneventful recovery.

25. Artery forceps (6-inch). Pelvis. Ovariotomy, nine months before. Symptoms: Febrile convalescence, recurrent abdominal pain, rectal pain and discharge. Passed spontaneously per rectum. Rectum ulcerated. No abdominal sinus. Recovery.

26. Small Spencer Wells forceps. Right iliac region. Removal of broad ligament cyst, ten days before. No symptoms. Removal. No damage to viscera. Forceps missed three hours after operation. Radiogram taken. No sinus. Recovery.

27. Spencer Wells forceps (8-inch). Pelvis. Salpingectomy, four years before. Symptoms indefinite. Removal. Severe adhesions present, but no erosion of viscera. Abdomen examined on account of haematemesis, and forceps felt through wall of lower abdomen. Radiogram taken. No sinus. Recovery.

28. Artery forceps (5½-inch). Pelvis. Hysterectomy, a few hours before. No symptoms. Removal by laparotomy. No damage to viscera. Forceps missed two hours after operation. Recovery.

29. Artery forceps (4½-inch). Lower abdomen. Ovariotomy, four hours before. No symptoms. Removal by laparotomy. No damage to viscera. Forceps missed three hours after operation. Recovery.

30. Flange of a Berkeley retractor. Lower abdomen. Hysterectomy, twenty-four hours before. No symptoms. Removal by laparotomy. No damage to viscera. Instrument missed after operation. Radiogram taken. Recovery.

31. Blade of retractor 3 inches long. Loin. Hysterectomy, fifty-four hours before. No symptoms. Removal by laparotomy. No damage to viscera. Radiogram taken. Recovery.

32. Artery forceps. Lower abdomen. Laparotomy, twenty-four hours before. No symptoms. Removal by laparotomy. No damage to viscera. Recovery.

33. Drainage tube 2½ inches long. Partly in bladder and partly in peritoneal cavity. Hysterectomy, twelve years before. Symptoms: Leucorrhoea for twelve years, cystitis for three weeks. Removal by suprapubic cystotomy. Ulceration of bladder. No abdominal sinus. Recovery.

34. Glass rod 4 inches long. Recto-vesical pouch. Colostomy, four and a half months before. Symptoms were referred to a large wound in the buttock. Removal during an operation for excision of rectum. Dense adhesions but no serious erosion of viscera. Recovery.

35. Flanged glass tube 2 inches long. Under right rectus muscle. Operation for relief of ascites fifteen years before. No symptoms except ventral hernia. The tube is still there and the patient in good health. The ascites is cured. No external sinus present.

36. Hairpin (straightened). Passing from rectum and transfixing the Fallopian tube. Possibly passed into rectum, about two months before. Symptoms: Dysmenorrhoea, rectal pain. Removal by laparotomy. Peritonitis round tube. Ulcer in rectum. No abdominal sinus. Recovery.

37. Bone knitting-needle 5 inches long. Left iliac fossa. Pushed through uterus, fifteen months before. Symptoms: Abdominal pain, increased by movement. Removal by laparotomy. Knitting-needle surrounded by omentum. No damage to viscera. Radiogram taken. No sinus. Recovery.

38. Uterine dilator 8 inches long. Below liver. Pushed through uterus four days before. No symptoms. Removal by laparotomy. No damage to viscera. Radiogram taken. No sinus. Recovery.

39. Bone knitting-needle 10 inches long. Pouch of Douglas. Possibly pushed through vagina. Symptoms: Intestinal obstruction. Removal by laparotomy. No damage to viscera. No sinus. Recovery.

40. Piece of steel needle, 1 cm. long. Appendicectomy two years before. Symptoms: Persistent abdominal sinus. Sinus opened up and needle removed. Recovery.

41. Pin. Back of broad ligament. No previous operation. Possibly swallowed. No symptoms. Removed during ovariotomy for ovarian cyst. Slight adhesions, but no damage to viscera. No sinus. Recovery.

42. Stone. Lower abdomen. Stone was accidentally forced through the rectum three days before. Symptoms: Pain. Removal by laparotomy. Recovery. Royal College of Surgeons Museum 2310 I.

43. Artery forceps (4½ inch). Left iliac fossa, perforating uterus. Two laparotomies, one eighteen months, the other nineteen years previously. Symptoms: Pain, diarrhoea, leucorrhœa. Removal by abdominal hysterectomy and suture of colon. Severe ulceration of colon present. No abdominal sinus. Radiogram taken. Sudden death six weeks later, as recorded in detail above. Royal College of Surgeons Museum.

44. Bone penholder 5 inches long. Above umbilicus, wrapped in omentum. Pushed through vagina three days before. Symptoms: Pain. Removal by laparotomy. No damage to viscera. Uneventful recovery. University College Hospital Museum.

REFERENCE.

[1] Crossen: *Amer. Journ. Obstet.*, 1909, vol. i; and also *Operative Gynaecology*, 1915, p. 589.

THE TREATMENT OF TRYPANOSOMIASIS.*

(*A FURTHER REPORT.*)

BY

CLAUDE H. MARSHALL, M.B., B.S.LOND.,

SENIOR MEDICAL OFFICER, UGANDA;

AND

S. M. VASSALLO, M.D., D.T.M. AND H.,

MEDICAL OFFICER, UGANDA.

CONFRONTED by the problem of the treatment of trypanosomiasis in the field, and at the same time precluded from access to any reference library, the present writers endeavoured to evolve a working hypothesis which would explain the relapses so characteristic of the disease, and on that hypothesis planned a method of treatment which at the time they thought novel, and details of which have already been published in two previous articles.[1] Briefly the procedure comprised an attempt to sterilize the blood stream by the intravenous injection of arsenical compounds and an immediately subsequent attempt to sterilize the central nervous system by the intrathecal injection of salvarsanized serum. When holiday leave, however, afforded opportunity of consulting the literature on the subject it became evident that similar hypotheses must have been adopted by several previous workers, notably Balfour, Van Someren, Thiroux, D'Aufreville, and Reichnow, even as far back as 1906, and the evolution of the idea can be followed by the following references.

Thiroux[2] suggested that the absence of trypanosomes from the blood of certain patients was due to the presence of specific antibodies; and conversely, the presence of trypanosomes in the cerebro-spinal fluid was due to the absence of such bodies.

Thiroux and D'Aufreville[3] conjectured that serotherapy would not give good results in meningeal trypanosomiasis unless the antitoxin was injected into the spinal canal and cerebral substance, as had been done in tetanus.

Balfour (1908) in a memorandum, "The treatment of sleeping sickness," presented to the Sudan Sleeping Sickness Commission, drew attention to the treatment of cerebro-spinal meningitis by intrathecal injection of immune serum, and suggested a combined therapy for sleeping sickness, the trypanosomes being attacked in the blood by some of the more promising of the chemical trypanocides, and in the cerebro-spinal fluid by the injection of the patient's own serum or the serum from a case under treatment, obtained by defibrinating or centrifuging the blood.

Van Someren,[4] putting Balfour's suggestion into practice, treated six cases, but concluded that the results were not encouraging. He added, however, that the method was tried only in cerebral cases, usually too far gone for other treatment.

Reichnow (1914), in the Kameruns, treated his cases on similar lines, but added 0.04 gram neo-salvarsan to his salvarsanized blood serum, a procedure which he himself admitted was far from devoid of danger and the risk attendant upon which caused him to abandon the method, as other observers had already done in the treatment of syphilis of the central nervous system.

From the above extracts it is quite clear that those whose duties included the treatment of sleeping sickness in endemic areas were even then—as they are now—dissatisfied with the adequacy of the methods at their command; so that it is almost incomprehensible to the present writers that the fact that they were following (even if unwittingly) the suggestion of such a keen observer and logical thinker as Balfour should have aroused so much and so uncompromising a hostility.

Moreover, the method we now advocate is administratively and economically sound. The patient's treatment is completed in two or three days, when he is free to return to his village and friends. Large hospitals and camps are no longer required, nor is the patient's life made irksome by continuous drugging for long periods of time. The natives themselves appreciate these advantages and now come in of their own volition asking for treatment.

Recently Warrington Yorke, in a critical review of recent work on the treatment of sleeping sickness in the *Tropical Diseases Bulletin*,[5] has done us the compliment of massing much of the evidence he has collected from the literature around the debatable points in our work in such a manner as to make it evident that he, like ourselves, is primarily interested in the elucidation of the disease. As we have now completed a further survey of the cases we have had under treatment by various methods, we wish to present the results to the impartial reader so as to make it clear where we are in agreement with Yorke's arguments and where we consider our observations justify a totally different interpretation. But first we would deal with some general observations in connexion with sleeping sickness.

Naturally the first point that arises in connexion with the work has reference to the virulence of the particular strain or strains of trypanosomes that are met with in the Uganda Protectorate. With a nomadic population it is sometimes difficult to collect the necessary figures in support of any particular view, but we now have notes relating to the Northern Province of nearly 100 cases which have been diagnosed clinically and by laboratory methods and have been under observation for a year and a half, and another 200 cases which have been under observation for a shorter period (six or seven months). For facilities in following up these cases we are indebted to the Hon. E. C. Eliot, Acting Chief Secretary of the Protectorate.

The following table shows the course of the disease in the district under natural conditions and without treatment, and may be of value in another direction also—namely, that of extending Yorke's Table II. We have here adopted Yorke's plan of setting out the percentage mortality under two headings—in the first place assuming that all the cases missing at the time of the second census were alive, and under the second heading assuming that those missing had died of the disease. From our table it will be seen that the mortality varied from a minimum of 14.7 per cent. in one series of cases of six months' duration to a maximum of 70 per cent. in the small series under observation from twenty months. The true mortality percentage obviously lies somewhere between these extremes, but in any case the inference is justified that the disease, as it occurs in Uganda, is a serious one, and that the strain of trypanosome which is encountered there is fairly virulent.

* This report was received on September 11th, 1922.

TABLE I.

District.	No. of Untreated Cases.	Months since first seen.	No. Alive.	No. Missing.	No. Dead.
Gulu	25	20	10	0	16
Arua	40	18	12	8	20
Toro and Katwe ...	28	18	11	8	9
East Madi	123	6	90	15	18
West Madi	118	7	73	20	25

The percentage mortality of these cases would therefore be as follows:

District.	Percentage "A."	Percentage "B."
Gulu	61	61
Arua	50	70
Toro and Katwe	31	60
East Madi	14.7	18.6
West Madi	21	38

Note.—The cases here shown are the cases still alive and not those "alive and well": if only the latter were included, the percentage would be very different indeed—for example, of the 12 cases alive in Arua, 6 are in an advanced state of sleeping sickness.

The East Madi figures are by Dr. G. D. H. Carpenter, who was in that area in September, 1921; of the cases he examined then, he only noted one as being in an advanced state, yet by February, 1922, eighteen had died. Further, in the same area, another sixty cases were discovered in March, 1922, but it is difficult to say if these were recent infections or were cases that had eluded observation during Carpenter's previous tour.

It is interesting to compare the figures relating to Gulu in this table with some details of a small series of treated cases discovered about June, 1920, in the same area; apart from the 26 untreated cases recorded in Table I, 11 others were conveyed a distance of some three hundred miles to one of us (S. M. V.) and were then treated in the latter part of the year as indicated in Table II. They returned home, two advanced cases dying on the road. Owing to difficulties of transport, etc., no further observations were possible till March, 1922—that is, about fifteen months after treatment—when it was found that a third case had died, giving a mortality of 28 per cent. The remaining eight cases absolutely refused blood, gland, or any other form of examination, so that, though alive and to all appearances well, we have no definite evidence to offer as to their condition, and have therefore omitted them entirely from our calculations.

TABLE II.—*Treatment and Results of the Gulu Cases.*

Case No.	Date of Treatment.	Treatment.	Result.	Period under Observation.	Remarks.
				Months.	
40	4.10.20	Intrathecal salvarsanized serum	Died	—	Advanced cases; died on road.
41	4.10.20	Ditto	Died	—	
44	4.10.20	Ditto	Well	15	C.S.F. positive (neo-kharsivan).
47	15.11.20	Ditto	Well	14	C.S.F. negative (atoxyl).
48	15.11.20	Ditto	Well	14	C.S.F. negative (atoxyl).
49	2.12.20	Ditto	Died	—	
50	2.12.20	Intramuscular salvarsanized serum	Well	14	Atoxyl.
51	6.12.20	Intrathecal heterogeneous serum	Well	14	C.S.F. negative (atoxyl).
52	6.12.20	Intrathecal salvarsanized serum	Well	14	C.S.F. negative (atoxyl).
53	6.12.20	Intramuscular salvarsanized serum (heterogeneous)	Well	14	Atoxyl.
54	6.12.20	Intrathecal heterogeneous serum	Well	14	C.S.F. negative (atoxyl).

If it had been possible to carry this experiment to a definite conclusion the results would have been of considerable value, since both the treated cases and the controls lived under identical conditions in an infected district, and in close contact with other cases of disease, for there is even now in Gulu and the surrounding districts a serious epidemic of sleeping sickness.

The next criticism—and a very reasonable one—that the cases we have recorded as still alive and well are not necessarily cured, cannot easily be controverted at this stage, owing to the widely varying interpretations placed upon the word "cure" by different authorities. In a discussion which followed the paper by the present writers at the Royal Society of Medicine in 1921 a five years' limit was suggested as desirable. Whilst regarding this as a counsel of perfection, we are not in the least inclined to take exception to it, and judged by this criterion we are ready to agree that all our cases are still "under observation"—although it may be noted that from time to time cases are reported in the medical press as "cured" well within this period. Hitherto, however, if clinical symptoms are totally absent and examination of the blood, glands, and, whenever possible, the cerebro-spinal fluid, is repeatedly negative within a period of two to three years, we have assumed that such an uninterrupted convalescence normally proceeds to a permanent cure. Such cases are referred to in all our subsequent tables as "alive and well."

Turning now to Yorke's criticisms, he is correct in emphasizing the fundamental character of our statement that "most authorities are agreed that although the (intravenous) administration of one dose of salvarsan, neo-salvarsan, or atoxyl may be sufficient to sterilize the blood stream, yet within a variable period, averaging about four months, the symptoms reappear and the disease progresses to a fatal termination." Table III, although it only comprises six cases that we have treated in the first instance with only a single dose of neo-kharsivan or novarsenobillon, does include some of the coincidences characteristic of the disease in Uganda which originally stimulated our interest in the treatment of trypanosomiasis.

TABLE III.—*Showing Results of Intravenous Treatment Only.*

Case No.	Date of Diagnosis.	Intravenous Dosage.	Result.	Period under Observation.	Remarks.
				Months.	
7	10.7.19	0.6 gm. neo-kharsivan.	Relapsed. C.S.F. + 27.10.19	—	Re-treated completely 28.10.19. See Table I.
14	22.11.19	0.6 gm. ditto	Well	26	
28	21.4.20	0.4 gm. ditto	Well	21	
56	13.1.21	0.4 gm. ditto	Died	—	Sleeping sickness 20.9.21.
68	2.8.21	0.3 gm. novarsenobillon	Recurred	—	Trypanosomes in blood 20.1.22.
69	15.12.21	0.6 gm. neo-kharsivan	Died	—	Sleeping sickness 17.4.22.

Thus (1) in two very early cases the single dose (intravenous) apparently acted as the desired *therapia sterilisans magna* and resulted in the individual remaining "alive and well" after twenty one (Case 28) and twenty-six (Case 14) months respectively; (2) in four cases the single dose was insufficient to sterilize the blood stream and/or the central nervous system; and (3) in three of these relapse occurred in three and three-quarter months (Case 7), four and three-quarter months (Case 68), and four and a half months, when death occurred (Case 69); Yorke, too, quotes Lurz as recording nine relapses out of eleven after salvarsan within one and a half months, and four out of six treated with atoxyl within one month.

Further, in many instances sleeping sickness is a disease of slow progress, and, although symptoms may reappear within a short time of one therapeutic dose, the subsequent progress may be very tardy; such, however, is not usually the case—for example, Case 56, Table III. With regard to the fatal character of the disease Yorke quotes one batch of cases undergoing various *prolonged* treatments (Table IV, *Bull. Trop. Med.*, 18, 1921, p. 172), which in this connexion is very significant—namely:

"Hodges, Uganda, states that of 1,185 cases admitted between December, 1906, and November, 1907, 734 were dead at the end of two years and only 49 could be found four years later, whilst 912 were known to be dead; of the 49 still alive, 27 were clinically advanced cases, 19 showed definite signs of disease, and only 3 were cases we should count as 'alive and well.'"

Other similar instances become at once apparent from an examination of Table IV, where we have completed Yorke's Table IV in this sense.

TABLE IV.

Author.	No. of Cases.	Condition before Treatment.	Treatment.	Length of Observation Period.	No. Disappeared.	No. Dead.	No. Alive.	Percentage of original total alive assuming all who had disappeared are		Remarks.	On our Basis "Alive and Well."	
								"A" Dead.	"B" Alive.		"A" percentage.	"B" percentage.
Hodges. Uganda: all sleeping sickness camps, 1910	1185	Unselected cases	Various prolonged treatments, chiefly arsenical	2 years	182	734	269	22.7	38.2	Of 49 alive: 3 good health; 19 definite signs of disease; 27 advanced	—	—
				4 years	224	912	49	4.1	23.0		0.2	10.5
Hodges. Uganda: Busino Camp, 1906-7	399	Unselected cases	Various prolonged treatments	3½-4 years	65	313	21	5.2	21.5	All showed signs of disease	0	0
Bagshawe. 1910	50	Europeans	Ditto	3-7 years	7	30	13	26.0	40 0	No details	—	—
Simson. Yei Camp, Sudan, 1920	35	15 early, 20 advanced cases	Metallic antimony, 8 injections	7 years	7	20	8	22.8	42.8	6 good condition	15.0	37.0
	29	Selected cases	15 injections antimony, 2 injections salvarsan	6 years	0	11	18	62.0	62.0	All good condition (2 died of small-pox and cerebro-spinal meningitis)	62.0	62.0
	23	Selected cases	15 injections antimony 36 injections atoxyl	6 years	0	4	19	82.6	82.6	17 good condition	74.0	74.0
	96	Unselected cases	2 years' continuous treatment	6-7 years	2	43	51	53.1	55.2	33 good condition 13 fair ,, 5 poor ,,	34.0	36.0
	63	Unselected cases	Atoxyl, prolonged treatment	7-8 years	0	23	40	63.5	63.5	26 good condition 6 fair ,, *3 poor ,, (* 2 died small-pox)	41.0	41.0
	11	Unselected cases	Ditto	7 years	0	5	6	54.5	54.5	No details	54.5	54.5
	7	Unselected cases	Ditto	6 years	0	3	4	57.1	57.1	2 good condition 1 fair ,, 1 bad ,,	28.0	28.0
	19	—	Ditto	5 years	0	6	13	68.4	68.4	6 good condition 3 fair ,, 4 poor ,,	47.0	47.0
	5	—	Salvarsan and atoxyl, 1 year	3 years	0	1	4	80.0	80.0	2 good condition 2 fair ,,	40.0	40.0
Marshall and Vassallo. 1918-1922	12	Unselected cases (2 advanced)	1 dose neo-kharsivan 1 injection intrathecal serum	2-3½ years	2	2	8	66.6	83.0	All "alive and well"	66.6	83.0
	17	Unselected cases	Ditto	18-21 mos.	1	0	16	94.0	100.0	All "alive and well"	94.0	100.0

With reference to our own cases which we have incorporated in this table we would point out: (1) Of the three cases we record as missing, two, we believe, died during the famine, while the third, we are informed, is working on an estate in a distant part of the country and is perfectly well; but as we have put the worst possible construction on our returns these "missing" do not really affect our percentage any more than those of Simson's cases who died of small-pox or cerebro-spinal meningitis. We have, however, excluded the two cases of reinfection, and the one case who died, possibly from delayed chloroform poisoning. (2) All our cases are unselected, as compared to some of Simson's returns, and the deaths occurred in very advanced cases, which would not have been included if we had exercised any selection. (3) The cases here included have only received one complete treatment—that is, one intravenous injection of arsenic and one intrathecal injection of serum the following day, as against the prolonged treatments of others—a point completely ignored by Yorke.

We would therefore suggest that this table in its present form not only affords considerable support to our first assumption, but also goes far to confirm our statement that our routine method of treatment has furnished better results than any one hitherto published treatment of a series of cases.

Again, in Yorke's Table I there are given details of 46 cases where it is claimed that (*a*) trypanosomes disappeared from the cerebro-spinal fluid after treatment, and (*b*) treated cases survived for long periods after their cerebro-spinal fluid was found to be infected. There are no details with regard to 4 cases, which leaves us 42 to deal with. Martin, Leboeuf, and Ringenbach record a series of 31 cases, and of these 11 disappeared and 10 died. Of the remaining 10, which were followed up, only 3 were found negative after twelve, nine, and seven and a half months respectively—that is, out of 31 cases under 10 per cent. were found to be negative. Incidentally the period of observation of all these cases is much less than ours.

The other 11 may be regarded as isolated cases. Eight are examples of negative cerebro-spinal fluid after treatment when examined at intervals of one and a half to nine months, but the cell count in most instances suggests that infection is merely latent. Of the remaining 3 cases (Gray and Tulloch) one gave post-treatment positive results until his death at the end of twenty-three months, and the other two were positive up to the end of 230 and 195 days respectively. These cases are of academic interest undoubtedly, but for all practical purposes merely indicate the slow progress of the disease in some individuals.

Yorke's Table II[e] is interesting, as in the first two instances it suggests that the chances of infected individuals remaining alive are equal whether they are treated or not; for example, 100 per cent. (calculated on 3 cases) and 80 per cent. (calculated on 5 cases) were still alive without any form of treatment. In a third instance the information that 5 were known to be well and working after four years out of a total of 102 cases is held to justify a percentage of 33 living (Dutton and Todd). The absence of any details with regard to the number dead, number alive, and number missing would, on the basis of our calculations, give less than 6 per cent. "alive and well."

The second assumption, a threefold one, is as to its first sentence—"Quite early in the disease the trypanosomes appear to gain an impregnable position in the central nervous system"—avowedly an alternative to the "drug-fast" theory. As to its second part—"in this position they are protected from the action of drugs"—it may be remarked that syphilologists as a body fail to find arsenic in this situation after using salvarsan and its derivatives in the medicinal doses at present employed. It further derives a certain amount of support even from the personal communication from Voegtlin to Yorke (which is all that is offered in contradiction of our

statement) that arsenic reaches the cerebro-spinal fluid in low concentration only after massive and toxic doses have been administered intravenously. The further observation of Voegtlin (unpublished), "that parasites in the cerebro-spinal fluid of experimental animals diminish within twenty-four hours of large doses of these drugs administered intravenously," might, it is true, be explained by the action of that trace of arsenic in the cerebro-spinal fluid, but we would hazard another explanation more in consonance with our own conceptions—namely, that trypanolysin is formed as a result of the action of the intravenous arsenic upon the trypanosomes in the circulating blood, and this trypanolysin is then secreted into the cerebro-spinal fluid by the choroidal cells.

The third part of this assumption, supported though it is by cases in which the cerebro-spinal fluid was originally apparently sterile, but was found to be infected at the time of the post-treatment relapse (for example, Case 7, Table II), is, we are willing to admit, still lacking in experimental proof, since on this point we can only offer the experimental work of Reichnow (one observer again) that infection does take place from the cerebro-spinal fluid to the blood stream. As to the exact route, until experimental proof is forthcoming we are willing to accept either of the suggestions put forward—namely, that infections in the basal systems travel via the nerve sheaths (Keith) or via the arachnoid villi (Halliburton), since either structure, in our opinion, might be permeated by the living trypanosome just as readily as it is by the amoebic activity of the leucocyte.

Still, with regard to the second assumption, we may perhaps deal further with some of Yorke's criticisms. In the first place he argues that if there are no nervous symptoms and the lumbar puncture is negative, there is no evidence that the central nervous system is involved, and therefore it is not justifiable to tamper with it. To this we would reply that a negative lumbar puncture does not necessarily mean that the cerebro-spinal fluid is sterile; the trypanosomes might be present in so small a number as to be overlooked or even to be actually absent from the quantum of fluid taken for examination—an argument which Yorke himself advances when it serves his purposes (that is, when he suggests that relapses are due to a few trypanosomes in the blood, so few as to escape detection when the blood is examined). That the parasites have other hiding-places than in the cerebro-spinal fluid, we are quite willing to admit is more than a probability (we have already referred to van Sacheghem's work on the bone marrow); it is almost a certainty, and could be paralleled by the relapses which occur in malaria after apparent sterilization of the blood stream by drugs, under circumstances where reinfection is impossible and where there is no suspicion either from the symptoms or from the subsequent history that the central nervous system has ever been involved. In face of the well known fact that nervous symptoms are practically always the accompaniment of advanced cases of sleeping sickness, we are of opinion that the central nervous system is the seat of election. Stevenson, too, has recently demonstrated trypanosomes in the central nervous system cells.

There is, of course, the possibility that Yorke, like many others even in the present year of grace, has a personal aversion to the local treatment of infections of the central nervous system, despite the brilliant results achieved in this direction by the scientific use of suitable serums in the treatment of cerebro-spinal meningitis, tetanus, and syphilis of the central nervous system. Others have already advocated local treatment for demonstrable trypanosome infections in this situation, and more recently Mayer urges intrathecal injection of "Bayer 205" and Pearce of tryparsamide. But in view of the opposition of the native to repeated lumbar punctures and the possibility of the existence of central nervous system infection at the moment treatment is undertaken, we consider it more politic to administer the drug through the needle employed to collect the specimen of cerebro-spinal fluid for examination. On the result of the subsequent examination we can decide whether we have employed the salvarsanized serum as a prophylactic or a therapeutic agent. In other words, on the clinical evidence at our disposal, we have gone a step farther than other workers and employed the method as our *routine* treatment, and we have the temerity to assert that our results have justified our action.

We are now in a position to present our own results to date in concrete form.

TABLE V.—*Cases Treated by Intrathecal Salvarsanized Serum and Results to Date.*

Case No.	Report up to 31.1.20.		Report up to 31.1.21.		Report up to 31.1.22.	
	Months since Treatment.	Remarks.	Months since Treatment.	Remarks.	Months since Treatment.	Remarks.
2	16	Well	28	Well	40	Well.
3	1	Disappeared				
4	12	Well	24	Well	35	Well.
5	1	Died (cause unknown)				
7	2	Well	14	Well	26	Well.
8	4	Well	16	Well	28	Well.
9	1½	Died				
10	2½	Died				
11	1½	Well	13½	Well	25½	Well.
12	1½	Well	13½	Well	25½	Well.
13	1½	Well	13½	Well	25½	Well.
15	1½	Well	13½	Well	25½	Well.
16	—	—	8	Well	21	Well.
17	—	—	8	Well	21	Well.
18	—	—	8	Well	21	Well.
19	—	—	8	Well	21	Well.
20	—	—	8	Missing	21	Well.
21	—	—	8	Missing	21	Well.
22	—	—	8	Well	21	Well.
23	—	—	8	Well	21	Well.
24	—	—	8	Well	21	Well.
25	—	—	8	Well	21	Well.
26	—	—	7½	Well	20½	Missing.
27	—	—	7½	Well	20½	Well.
29	—	—	7½	Well	20½	Well.
30	—	—	6½	Well	19½	Well.
32	—	—	6½	Well	19½	Well.
33	—	—	1 day	Died*		
45	—	—	—	—	16½	Well.
55	—	—	—	—	13	Well.
60	—	—	—	—	11	Well.
61	—	—	—	—	11	Well.

* ? Chloroform poisoning.

Table V gives the cases treated by the method we suggest should become a routine one, with the reports at the various time periods presented on former occasions. Apart from two cases this needs no comment. We must, however, draw attention to Cases 18 and 20. These were found at a subsequent examination several months after treatment to harbour trypanosomes in their glands, but in both cases the cerebro-spinal fluid was negative.

Case 18 was treated on April 18th, 1920; three subsequent examinations were all negative: a fourth one on July 27th, 1921, showed trypanosomes in glands.

Case 20 was treated on April 25th, 1920: subsequent examinations were all negative, but on April 20th, 1921, trypanosomes were recovered from a gland by puncture.

Obviously these two cases would be claimed, by hostile critics, as instances of the failure of our routine treatment; we, however, consider them as reinfections—the only ones we have noted; the circumstantial evidence that influences our opinion is as follows:

1. The glands of both cases had disappeared after the first treatment, and there had been consistent negative results of blood, glands, and cerebro-spinal fluid.

2. There had been no clinical signs or symptoms of any sort during these twelve months, and it would therefore appear probable that the disease had been arrested at the time of the first treatment.

3. Both patients live at Nakibira, a village in the *cleared* part of the sleeping sickness infected area on the Mpologma River, from which place, however, a succession of fresh infections have been derived (Cases 36, 37, 66, 67, and 68).

4. Investigation showed that the people from this village were crossing to an uncleared and heavily fly-infested promontory, Budobo, for the purpose of devil worship.

5. Acting on the belief that they were not relapses but reinfections, and early cases at that, we treated them by a single intravenous injection of arsenic. Up to the present date they both remain quite well, and blood, glands, and cerebro-spinal fluid are completely negative. (Another case treated with plain serum, who also comes from Nakibira, showed trypanosomes in glands, and he also is possibly a reinfection.)

In view of a suggestion made to us by Dr. Shaw Mackenzie of King's College, that the results obtained from serum treatment might be due to the stimulation of fat splitting by the autogenous serum, we have treated a number of cases by injecting the serum intramuscularly instead of intrathecally. The number so treated, however, is too small for any conclusions to be drawn from them. Dr. Shaw Mackenzie also gave us two preparations to try—"A" and "B"—on which we are experimenting; further, he suggests that autogenous serum is one of the best stimulants of lipase.

In our endeavour to ascertain clinically the most satisfactory procedure we have used other methods; these are set out in Table VI, which is again self-explanatory.

TABLE VI.—*Showing all Cases Treated, Method Employed, and Result to Date.*

No.	Method.	Total Treated.	Alive and Well.	Dead or Relapsed.	Number Missing.
1	Intrathecal serum	41	31	8	2
2	Plain serum—that is, no preliminary drug injection	4	3	1*	0
3	Non-autogenous serum: injected intrathecally or intramuscularly	7	4	3	0
4	Intramuscular serum—as 1, but intramuscularly†	7	5	1	1
5	Drug only intravenously	5‡	2	3	0
6	Drug direct into spinal canal	2	0	2	0

* Possibly reinfection. See report.
† See Shaw Mackenzie's suggestions.
‡ See Table II.

Towards the end of 1920 Dr. Ashton Bond of the Church Missionary Society, Toro, at our request treated some cases by the salvarsanized serum method. He writes as follows (January 31st, 1922):

"About two months ago I was at Katwe and Kazinga, where the sleeping sickness cases mostly are. I saw a number of those whom we treated with intravenous neo-kharsivan and intrathecal injections of serum (about eighteen months ago) and in most cases there was general improvement of general health and also the glands had mostly become so small as to be hardly palpable, or else were not palpable at all."

Bond has, in addition, treated 12 other cases; after an average period of twelve to eighteen months these were re-examined, and the following report sent to us about them: "Dead, 2; 'alive and well,' 5; and migrated to Belgian Congo, 5." (The latter are therefore probably quite well.)

Apart from the appended figures we have, since the beginning of 1922, treated some 200 cases at the suggestion of the Uganda Government. These we have grouped under various treatments as follows:

1. Intrathecal salvarsanized serum.
2. Intramuscular salvarsanized serum.
3. Intramuscular plain serum.
4. Intrathecal plain serum.
5. Non-autogenous intrathecal serum.
6. "A" (Shaw Mackenzie) intravenously only.
7. "B" (Shaw Mackenzie) intravenously, followed by serum.
8. "B" (Shaw Mackenzie) intravenously only.
9. "B" (Shaw Mackenzie) intramuscularly only.

The study of these cases should provide an instructive commentary on the efficacy of the treatment we advocate.

We wish to express our deep obligation and thanks to Dr. C. A. Wiggins, P.M.O. Uganda, for permission to publish this report, and also for his great assistance in enabling us to carry out this method on a large scale; also in Uganda to Drs. Mary Martin, Griffin, Bond, and Rawson; and in England we are deeply indebted to Professors Simpson and Eyre and to Dr. Shaw Mackenzie for their very valued interest and assistance.

REFERENCES.
[1] BRITISH MEDICAL JOURNAL, 1920, i, p. 702; 1921, i, p. 773. [2] *C. R. Soc. de Biologie*, 1906, p. 778. [3] *Ann. d'Hygiène et de Méd. Coloniale*, 1907, p. 347. [4] BRITISH MEDICAL JOURNAL, 1910, i, p. 195. [5] *Trop. Dis. Bulletin*, xviii, 18, 1921, p. 155. [6] *Bull. Trop. Med.*, 1921, 18, p. 172.

HISTOLOGICAL CONDITIONS IN A CASE OF ADDISON'S DISEASE.

BY

EVELYN E. HEWER, D.Sc.,

LECTURER IN HISTOLOGY AND ASSISTANT LECTURER IN PHYSIOLOGY AT THE LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.

IT is not easy to find any detailed description of the microscopical appearance of the organs in Addison's disease; the following details may therefore be of interest, more especially in view of the prominent part that is being assigned to the endocrine organs at the present time.

History.—The patient was a storeman, aged 42. In September, 1921, he began to suffer from indigestion accompanied by vomiting, and about the same time his wife noticed that his skin began to darken; she stated that the deep bronze colour noted on his admission to hospital was reached within a few weeks. In January, 1922, the patient gave up work, and took to his bed on account of progressive weakness; at this time he also complained of pains in his limbs and chest, and was treated for "influenza." On February 14th, 1922, he was admitted to hospital suffering from extreme weakness. He had had no previous illness except severe influenza thirty years ago. The family history is good and he has five healthy children.

Condition on Admission.—The patient was emaciated, although well built and muscular. He was extremely weak, and sweated freely on the slightest movement. Temperature 94° F., but no shivering. The skin was brown all over, the pigment being most marked over the hands, face, penis, scrotum, nipples, and anterior folds of the axilla; there were also brown spots within the cheeks. There was some deep tenderness over the liver; no superficial abdominal hyperaesthesia. There was slight dullness over the apex of the right lung. Knee and ankle jerks absent; flexor plantar reflex. The urine was alkaline, sp. gr. 1026; otherwise nothing abnormal detected. Respirations 20, shallow. Circulation: Radial pulse not felt; blood pressure (by auscultatory method) 55 mm. Hg; blood film normal. A blood count showed red blood corpuscles 4,800,000; haemoglobin 65 per cent.

The temperature rose to 98° F. on February 15th. On the morning of the 18th, the fourth day after admission, he suddenly became weaker and died.

Post-mortem Report.

Lungs: Old pleural adhesions present over the whole of the right lung; a few scars of old healed tubercle at right apex. Bronchial glands show no evidence of tubercle. Heart: 230 grams, normal. Liver: 1,450 grams, slightly nutmeg. Gall bladder: Distended; contains a single small black stone; no evidence of inflammation. Spleen: 200 grams, moderate perisplenitis. Kidneys: 330 grams, normal.

Suprarenals.—Right, 16 grams; left, 22 grams. The right is small and fibrous, the left shows much fibrosis and some areas of caseating material. No evidence of accessory suprarenal tissue.

Microscopical Appearance of Organs.

The material obtained at autopsy was fixed immediately in formol-acetic-Müller, and embedded in paraffin; the sections were stained with Scott's haematoxylin and Biebrich scarlet, with Mallory's connective tissue stain, with Weigert's resorcin-fuchsin stain, and by the Ziehl-Neelsen method for the tubercle bacillus.

Suprarenal.—Only one small area of cortical tissue found involved in a chronic tuberculous process with round-cell infiltration showing an unusually high percentage of plasma cells. There was much fibrosis, some calcification, and formation of many giant cell systems. The cells of the cortical tissue were of the type belonging to the zona fasciculata, many of them spherical with strongly eosinophil cytoplasm and excentric nuclei; other cells were very irregular, with poorly staining nuclei. The unhealthy appearance of these cells might have been due to *post-mortem* changes, but more probably indicates the breakdown of the last remnants of true cortical tissue. No medullary tissue was found. The surrounding fat was unusually rich in small round cells. A small ganglion just outside the organ showed some cellular degeneration and pigment deposition.

Pancreas.—No gross lesion was detected. The islets of Langerhans appeared normal, and contained some lymphocytes. The organ was extremely vascular, and there was some fibrous increase in the blood vessel walls.

Thyroid.—The organ was not so vascular as usual. There was very little intervesicular parenchyma, but frequent aggregations

of lymphocytes between the vesicles. Most of the latter were distended with colloid, and showed a very flattened epithelium; in these vesicles the colloid stained very deeply with Biebrich scarlet, and was probably old. A very few vesicles showed the typical cubical epithelium, lightly staining colloid, and slight vacuolation round the edge of the colloid, that indicate active secretion; these vesicles, mostly towards the outer edge of the gland, seemed the only really active ones. A few vesicles showed migration of cells into the colloid, and the appearance of giant cells; both epithelium and colloid were disappearing from these vesicles.

Thymus.—Some true thymus tissue was persistent, lying as nodules in fat and fibrous tissue. There was slight increase of the connective tissue elements, and large cells of endothelial type were entering the gland in parts by way of the trabeculae. A few large, clear, strongly eosinophil cells were present, and an occasional giant cell. The Hassall's corpuscles were unusually large and well formed, and a few chromophobe complexes were also present.

Spleen.—The capsule contained hardly any muscle, being almost completely fibrous. The pulp showed intense congestion, with hyperplasia of the endothelial cells at the expense of the lymphoid tissue. The Malpighian bodies were small, otherwise normal. A very few giant cells were present, and many eosinophil myelocytes, which usually showed bilobed nuclei. The walls of the small arteries were thickened.

Testis.—The condition of the seminiferous tubules resembled somewhat that obtained by the action of *x* rays in small doses. (This patient had never received any *x*-ray treatment.) There was marked degeneration of the tubules; no spermatozoa were present, but a few spermatids. In the tubules, cells of all stages of development were being set free into the lumen; some of these cells showed a large nucleus with diffuse, poorly staining chromatin; others showed a very small pycnotic nucleus. There was no mitosis. A few tubules showed giant-cell formation. Very little interstitial tissue was present; there were very few (if any) real interstitial cells, but an increase of fibrous tissue and a few large strongly eosinophil granular cells. The vascularity was not increased.

Semilunar Ganglion.—There was definite, patchy, cellular degeneration, but no evidence of local tuberculous or other inflammation. Very few of the cells were healthy, and various stages of degeneration could be distinguished. There were cells staining poorly, showing an indistinct outline, swollen excentric nucleus, and pycnotic nucleolus; in a later stage the nucleolus was lost and yellow pigment granules appeared in the cytoplasm; then the nucleus became vacuolated and disappeared, the cytoplasm became very granular, and much pigment was deposited; this pigment did not contain iron. The nuclei of the cell capsules were also degenerated, and some of the nerve fibres. Nissl staining showed that the basophil substance was diffused throughout the cytoplasm, even when the cells appeared healthy.

Lymphatic Glands.—Lymph glands from the neighbourhood of the suprarenal, pancreas, semilunar ganglion, and portal fissure were examined. They all showed subacute inflammation, but no tubercle bacilli were found. A fibrinous exudation was always present just within the capsule, and filling the periglandular lymphatic sinus. The cellular content was high, and many large endothelial cells were present, entering the glands along the connective tissue strands; there were also many eosinophil cells of various sizes, some clear, others granular. Most of the glands showed some fibrosis. No pigment was present.

Pituitary.—The pars posterior was more vascular than is usual and showed several small haemorrhages; there was no evidence of pigment, nor of "colloid," but small granular masses with faintly eosinophil reaction were present. The pars intermedia showed a small amount of eosinophil colloid, and a large proportion of the small strongly eosinophil cells of the pars anterior. The pars anterior had a general appearance of being normal; the small chromophobe cells were fairly numerous, but there were very few of the large basophil cells; on the other hand, the vast majority of cells were strongly eosinophil, and these were of all sizes. Some colloid was present, similar to that of the pars intermedia; and between the groups of cells, but apparently not in the blood vessels, there was much granular chromophobe (?)secretion. In parts some cells were greatly enlarged and swollen, with excentric nuclei, looking as if being changed into this chromophobe granular material. There was some increase of fibrous connective tissue in the pars anterior.

The presence of the tubercle bacillus was not demonstrated in any of these organs.

Considering the extent of the suprarenal lesion, serious symptoms were of comparatively short duration. At the time of death there was probably no functioning suprarenal tissue, and yet the patient had been at work until three weeks before this.

It has been stated that in Addison's disease there is a general increase of lymphocytes; in this case no such increase was apparent. The blood picture was normal; in the spleen the lymphoid tissue was even decreased owing to the increase of the endothelial cells. In such lymph glands as were examined the cellular content was certainly high, but in addition to the increase of lymphocytes there were also many endothelial cells. But a general lymphoid increase was not apparent; this is contrary to the distinct increase that the author obtained in rats whose suprarenals had been almost destroyed by inoculation with certain suprarenal constituents.

It is to be regretted that no haemolymph glands were obtained for examination, because in the experiments just referred to melanoblast cells—carrying pigment presumably produced consequent on the deficient elaboration of adrenin—had been found in these glands. In the case under discussion such cells were not found in the organs examined; no doubt melanin-bearing cells were present in the Malpighian layer of the skin, as is usual in this disease.

The thymus evidently reacted to the condition in the same way as the other lymph glands, as shown by the appearance of endothelial cells. The large Hassall's corpuscles and chromophobe complexes are usually interpreted as signifying involution of the gland; this is what would be expected in a man aged 42. The condition of the thyroid is interesting in connexion with the view that this gland and the suprarenal mutually excite each other's activity. In this case the suprarenal was probably functionally inactive, and the thyroid presented an appearance similar to that seen in colloid goitre, with very few indications of any activity. The degeneration of cells in the sympathetic ganglia in this disease has been emphasized by others; it may perhaps be due in part to the lack of adrenin, which is necessary for the optimum functioning of the sympathetic nerve endings.

The atrophy of the seminiferous tissue in the testis is of interest in view of the debated relationship existing between the suprarenal cortex and the gonads. In this case both seminiferous and interstitial tissue were degenerating. Here again the breakdown of the tubule cells was precisely similar to the degeneration experimentally brought about in rats by suprarenal inoculations (where again the suprarenal was more or less destroyed), and is probably due to perverted or deficient action of suprarenal autocoids.

It is often stated that there is a close functional relationship between the suprarenals and pituitary. In this case the suprarenals were probably functionless, and the pituitary had the appearance of great secretory activity. It is somewhat difficult to interpret the appearance of a "fixed" human pituitary; the *post-mortem* changes are rapid, and various fixatives have very different effects on the cells. The extension of colloid material into the pars anterior, and the presence of masses of granular chromophobe material, probably signify great activity; it is, however, unusual to find the colloid strongly eosinophil, and the relative number of basophil cells was below the normal.

I am greatly indebted to Dr. A. P. Beddard, under whose care the case was, for permission to make use of the hospital reports from which the above details of the history of the case and the gross *post-mortem* findings have been taken, and also for permission to publish this case. I would like also to thank Dr. Laidlaw for procuring the material for me, and Professor Herring for examining the sections of the pituitary.

TWO CASES OF HORSESHOE KIDNEY.

BY

CLIFFORD MORSON, O.B.E., F.R.C.S.,

SENIOR ASSISTANT SURGEON, ST. PETER'S HOSPITAL.

THE union of both kidneys by means of fibrous tissue is a well known abnormality, generally recognized in the *post-mortem* and dissecting rooms, Sir Henry Morris claiming that it occurs in one out of every thousand bodies. But when the uniting band is composed of renal tissue the condition is believed to be of unusual interest and undoubted rarity. The cases which I record come in the latter category, and the interest of one is enhanced by an accurate diagnosis having been made during life with the assistance of pyelography.

CASE I.

The patient, a man aged 45, had suffered from a stricture of the urethra for many years, which from time to time had been dilated with instruments. When this man came under my care, apart from difficulty in micturition, he complained of pain in the left loin. A skiagram revealed the presence of a shadow in this region, but as I was not convinced that it was in the left renal area I decided to perform pyelography. The pyelogram clearly showed the presence of an accessory calyx directed inwards from the lower pole of the left kidney towards the vertebral column. It also demonstrated a shadow immediately above that of the accessory calyx and distinct from it. The renal pelvis was shown to be dilated, but no calyces other than the one mentioned could be seen, the explanation of which was not cleared up until after the operation.

Under general anaesthesia an incision was made in the left lumbar region and the kidney exposed. It was found that the convex border of the kidney was resting on the quadratus lumborum,

the pelvis looking forwards and slightly inwards. This position explained why no calyces other than those of the uniting portion of the renal tissue could be seen in the pyelogram, the shadow due to the dilated pelvis lying immediately in front of the kidney.

All attempts at delivery of the kidney on to the surface of the loin failed, owing to the lower pole being attached to the opposite kidney. The bond of union could be felt as a thick mass extending across the middle line immediately in front of the aorta and inferior vena cava. The successful removal of the calculus, which was embedded in the lower pole, presented difficulties on account of the lack of mobility of the kidney, and an incision had to be made through the capsule and cortex before the stone, the size of a marble, could be extracted. The patient's convalescence was slow, but no complications occurred until six weeks later, when an outbreak of influenza in the ward caused pneumonia to set in, from which the patient died.

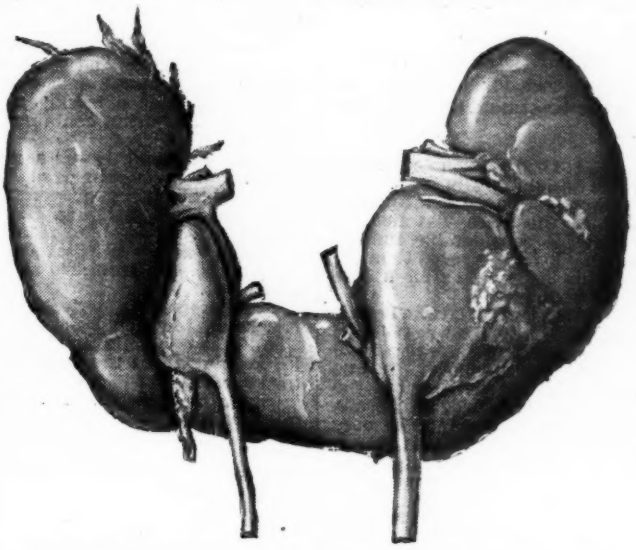


FIG. 1.—Drawing of horseshoe kidney, showing the position of the bloodvessels which supply the uniting band of renal tissue, also the ureters passing down in front of it, and the dilatation of both pelves.

The *post-mortem* examination revealed a very fine example of a horseshoe kidney. (See Fig. 1.) The left half of the transverse portion was anatomically perfect—that is, it consisted of calyx and cortex, the latter seen with the microscope to be made up of glomeruli and tubules. The right half had no calyx, but normal glomeruli and tubules were present. Each half of the uniting band of renal tissue had its own blood supply, which was distinct from that of the kidneys proper. The ureters, as is usual in these cases, passed down in front of the kidneys. Both pelves were dilated, the left more than the right.

In order to confirm the presence of an accessory calyx, as seen during life in the pyelogram, and before a portion of the uniting band had been removed for microscopical examination, a *post-mortem* pyelography was performed. The accompanying illustration (Fig. 2) shows the result of this procedure. The accessory calyx and the dilatation of the renal pelvis are again well demonstrated, but branching shadows can also be seen in the cortex of the left kidney. These shadows are caused by the pyelogram fluid having been injected under pressure, and forced into that part of the cortex where incision was made for removal of the calculus.

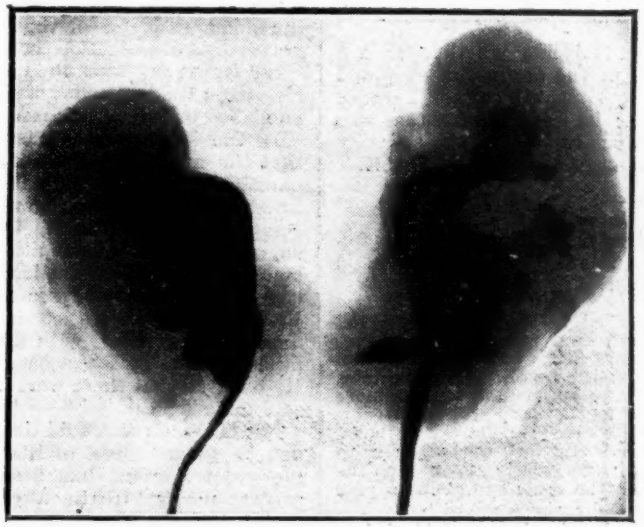


FIG. 2.—*Post-mortem* pyelogram. Note the shadows of the accessory calyx and those in the cortex. The pelves of both kidneys are dilated.

Since this specimen was shown at a meeting of the Section of Urology of the Royal Society of Medicine, I have had to operate on a somewhat similar case at the Whipps Cross Hospital. The notes of the case are as follows:

CASE II.

The patient, a man aged 33, had had intermittent attacks of pain in the left loin from childhood. No investigation of the urinary tract had been undertaken until recently, when cystoscopy was performed at one of the London hospitals. The patient, having refused any further examination, was discharged, but later was admitted to the Whipps Cross Hospital. Again he refused any examination, but was willing to undergo an operation if promised that he would be relieved of his pain. As a fluctuating swelling could be felt in the left loin extending down to the left iliac fossa, I felt confident of the diagnosis of hydronephrosis without the necessity of confirmation by pyelography. As indicating pressure on the inferior vena cava the superficial veins of the lower limbs and lower abdomen were noted to be dilated. Previous to the commencement of the operation, when fully anaesthetized, the patient was cystoscoped. The bladder and ureteric orifices were normal. A catheter passed up each ureter without difficulty, but the quantity of urine which escaped from the left side was greater than that from the right. The urine analysis prior to operation showed a urea excretion of 2 per cent. and the absence of abnormal constituents.

On exposure of the left kidney through an incision in the anterior abdominal wall the diagnosis of hydronephrosis was verified. Its removal was not possible until some of the fluid contents had been evacuated, this being accomplished by means of trocar and cannula. Two and a half pints of straw-coloured fluid were thus drawn off. From this bag of urine two small stones were also removed. Separation of the surrounding tissues from the kidney then revealed a band of renal tissue 1½ inches broad, extending from its lower pole across the aorta and inferior vena cava and continuous with the lower pole of the opposite kidney. The latter in size and consistency felt normal. The left ureter and left spermatic vein, which were anterior to the uniting band, were ligatured and divided. With great care this transverse band was next dissected off the aorta and divided between two ligatures of Japanese gut. No accessory calyx was observed. The ligature of the vessels of the renal pedicle was attended with some difficulty owing to their unusual arrangement. In fact, no pedicle as such existed, both arteries and veins having entry and exit along the entire length of the inner border of the kidney.

The operation was followed by profound shock and paralytic distension of the small and large bowel, but these disquieting phenomena disappeared under appropriate treatment carried out by the resident medical staff of Whipps Cross Hospital. The dilated veins of the lower abdomen and limbs subsided within a week of the nephrectomy. From the first the function of the remaining kidney was satisfactory.

It has been stated that in cases of horseshoe kidney an occasional symptom is epigastric pain due to pressure of the transverse band on the aorta. It was absent in both of my cases. Moreover, I am sceptical of such an explanation should there be complaint of pain in this region. The first structure to show signs of pressure must be the thinner walled inferior vena cava, and then the sympathetic nerve trunks in its vicinity.

A careful search of the literature on the subject of horseshoe kidney has not elicited any reference to the presence of accessory calyces in the uniting band, as diagnosed by means of pyelography. I have reason to believe, therefore, that the pyelogram of the first case is unique.

THE United States Census Bureau states that in 1921 the death rates of mothers from childbirth and puerperal causes were lower in 1921 than in any year since 1917. In the area for which figures are available the death rate in 1921 from puerperal causes was 6.5 to 1,000 live births, and the ratio of deaths from childbirth to the number of women bearing children in the year was about one to 150.

THE *Nederlandsch Tijdschrift voor Geneeskunde* states that the sixth All-Russian Congress of Internal Medicine was held in Petrograd last September under the presidency of Professor Kontschalowsky of Moscow; 500 members were present, and 104 communications were made. Moscow has been chosen for the next meeting in 1927. The fifteenth All-Russian Surgical Congress was held the same week in Petrograd, and was attended by 685 members. There were 158 communications.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

MILK INJECTIONS IN INFANTILE COMPLAINTS.

THE case here reported may be of interest, for although the diagnosis may be open to question the treatment was followed by immediately satisfactory results.

At the local maternity hostel Mrs. W., at 11.30 p.m. on September 28th, 1922, gave birth to a male child weighing 7lb. 10oz. The confinement was normal, but forceps were employed at the end on account of feeble uterine contractions; no force was needed. During the first two days the baby passed a considerable amount of blood in its stools, and on the third day I was prepared to inject haemoplastin, but found that the bleeding had ceased after a dose of castor oil. Haemoplastin was therefore not given.

As the mother had no milk the baby was put on citrated cow's milk, which appeared to suit it quite well. When a week old, on October 5th, it began to have convulsions; at first infrequent and slight, they soon became frequent and very pronounced. In one night as many as thirty fits were observed. On October 8th the diet was changed to Nestlé's milk with cream added, and he was given 1 grain each of bromide and chloral regularly; the only result observable was that he was drowsy between the fits, which were just as frequent. He never vomited, nor did he seem to be in discomfort. The convulsions went on for a whole week, and showed no signs of stopping. The questions which arose were: What was the cause of the convulsions? and what treatment should be adopted? It did not seem probable that the brain had been injured during birth, for the labour was easy, while there had been no fits until the first week had passed.

There were no indications that the milk was not being digested, or that it was in any way unsuitable; but the idea that the child had in some way been sensitized by the protein of the milk gradually became a conviction. About noon on October 12th I boiled a little milk in a test tube and injected 10 minims into the child's thigh. The fits were worse down to about 7 p.m., after which they gradually eased off, and by 6 a.m. on October 13th they had ceased entirely, and down to the present, three months later, another fit has not been observed. For the day or two following the injection of the milk there was a considerable inflammatory reaction in the thigh, which was hard and tense, but subsided.

I must leave it to others to decide whether or not anaphylaxis was the actual cause of the fits in this case, and whether the injection of milk desensitized the child. I record the case as I do not remember having come across one similar, and the result was spectacular.

Harrow. W. A. WILSON-SMITH, M.D., D.P.H.

The result of the method of treatment adopted in the following case was very striking, and may be found useful in similar cases of infantile diarrhœa.

A baby girl was born on November 2nd, 1921; she weighed 6½ lb., and was perfectly healthy. She was fed by the mother, and things went well for three days; but on the fourth day icterus neonatorum appeared, and the stools became dry, chalky, pale yellow in colour, and increased in frequency, until on November 9th twenty or more were passed in twenty-four hours. The character of the stools now altered; they were loose, watery, with mucus and streaks of blood in them. The child became restless and lost weight, in spite of careful treatment. The parents were greatly alarmed, as the first baby, a boy, had died of exactly the same symptoms a year previously.

On November 12th 1 c.cm. of sterilized mother's milk was injected subcutaneously. The effect was remarkable. The patient, who was peevish and restless, slept for ten hours at a stretch. The number of stools dropped to five during the next twenty-four hours; but they were still loose and slimy. On November 14th a second injection of 2 c.cm. of mother's milk was given. The diarrhœa stopped, and within forty-eight hours the stools became normal. The child rapidly gained in weight, and is now alive and well.

The mother's milk in the above case was abnormally rich, thick, and yellowish in colour, and the infant was unable to digest it. The subcutaneous injection produced a lasting tolerance, and the child has now gone through her first year of life unusually free from trouble.

Bombay. B. P. SABAWALA, F.R.C.S.E.

VENESECTION IN A CASE OF APHASIA.

VENESECTION is so rarely performed nowadays that the following case is, I think, both interesting and instructive.

The patient is a man aged 52, who had been treated by me some nine years ago for pancreatic diabetes, but had been lost touch with during the war. There is no history of syphilis. On January 3rd, 1923, I was called to the patient, who had gone to bed on feeling "queer" soon after the midday meal. His face was congested, his mouth drawn to the left, and his speech more or less incoherent, although he was quite conscious, knew what he wanted to say, and was annoyed when he used wrong words. He had vomited, but was not in pain, nor was there any apparent loss of power or sensation. The temperature was normal; pulse 72, regular, and somewhat "full." The blood pressure was not taken, as I considered other action more urgently necessary. The heart was normal in size and situation and there were no adventitious sounds. Eye movements were normal; pupils of medium size, equal, and reacted briskly to light; fundi normal. Knee-jerks normal. The urine contained large amounts of both sugar and albumin.

I decided that this was a case in which blood-letting was indicated, and at once opened the left median cephalic vein and relieved him of three-quarters of a pint of blood. The effects were immediate and gratifying. His complexion improved, the vomiting ceased, and he began to recover his proper speech. Subsequent progress was no less satisfactory. He was placed on a strict diet, which was amplified at the end of a week, and given other treatment.

The patient says he feels quite well, though weak. His speech is normal, and though his mouth still droops a little on the right side he can whistle and laugh without difficulty or deformity. He is going about the house, but not yet taking an active part in his business.

[Since the above was written he has developed albuminuric retinitis.]

London, W. R. GALWAY MURRAY, M.D.

Reports of Societies.

THE TREATMENT OF GASTRIC AND DUODENAL ULCER.

A MEETING of the Hunterian Society was held on January 29th at the Mansion House, with the President, Dr. FORTESCUE FOX, in the chair. In opening the meeting the President said that this was the first occasion during the Society's long connexion with the City of London on which it had met in the official residence of the Lord Mayor, and he expressed its great sense of obligation for the privilege.

Sir BERKELEY MOYNIHAN delivered the second Hunterian lecture on the treatment of gastric and duodenal ulcer. It is published in full in this issue at page 221.

In the subsequent discussion Dr. J. R. BELL (Leeds) said that the method of fractional gastric analyses was of comparatively recent introduction into this country, and the interpretation of the curves obtained was by no means complete. It had been the custom to describe typical curves for different conditions, the most notorious example being the so-called duodenal ulcer curve—a rapidly rising curve with continued secretion. But in a series of Sir Berkeley Moynihan's cases this curve was found in only 5 per cent. of those with duodenal ulcer, showing how very fallacious the statistics based on particular curves might be. He believed that there were almost no curves which could be said to be typical.

Mr. H. W. CARSON said that the principle that cases should not be turned over to the surgeon until a long course of medical treatment had been tried was likely to lead them astray; medical treatment of chronic gastric ulcer was likely to be useless. The present tendency in operation was to be more and more drastic, and partial gastrectomy offered itself as the recognized procedure; mere excision was not sufficient, nor, he thought, Balfour's operation. He did sleeve resection for a particular type of callous ulcer over the lesser curvature; though it sounded a formidable operation, patients stood it very well.

Dr. CAMPBELL MCCLURE thought Sir Berkeley Moynihan had been a little hard on medical treatment; it required patience and endurance on the part alike of doctor and patient. The idea of starving a patient for a few days and then hurrying him on to a moderate diet shortly after the disappearance of the symptoms was ridiculous. He agreed that the treatment of chronic gastric ulcer, once the diagnosis was thoroughly established, should be surgical. He was glad to hear the question of gastrectomy pushed; anything which would avoid gastro-jejunostomy was to be encouraged, for it was a horrible makeshift.

Mr. GORDON TAYLOR said that he was becoming more and more an ardent advocate of partial gastrectomy, the results of which were extraordinary. There were certain cases of gastric ulcer where the haemorrhage would not cease in spite of medical treatment. He had ten cases of gastric ulcer

associated with severe haemorrhage, and performed partial gastrectomy, with nine recoveries; they were all very large ulcers.

Dr. RAMSAY (Tasmania) spoke in admiration of the technique he had studied at Sir Berkeley Moynihan's clinic, and said that he would carry back to Australia very pleasant memories of some excellent surgery.

Mr. J. H. ROBERTS also spoke in support of partial gastrectomy, which, he said, was followed by no symptoms—a result that could not be claimed for any other form of operative treatment. Mr. A. MORTIMER WOOLF referred to the extreme importance of diagnosis. In both duodenal and gastric ulcer the most important indication in diagnosis was obtained from the clinical history, which could only be elicited by good temper and great care. The PRESIDENT (Dr. Fox) remarked that in recent epidemics of influenza symptoms indistinguishable from duodenal trouble were often observed, and he had known operations for perforated duodenal ulcer necessary after influenza.

Sir BERKELEY MOYNIHAN declared that he had never said or thought that a gastric ulcer could not be compelled to heal. The scars—seen rarely at operation, more frequently in the *post-mortem* room—indicated with certainty that a chronic gastric ulcer had healed. All his efforts that evening had been directed to the encouragement of the physician so to supervise, and especially to protract, his treatment as to secure such a result. His own sympathies were really medical. After all, the craft of surgery was a thing within the capacity of most men who took pains. But the things within the purview of the physician were illimitable and infinitely more interesting. Surgery, bereft of medicine, was work for anybody. Surgery with medicine in it was, in his judgement, the greatest pursuit in the whole world. Physicians found fault with gastro-enterostomy, but there was no fault to be found with that operation; the fault was with the people who practised it in cases in which it was utterly inadequate. Gastro-enterostomy was quite useless—he could assure them, because he had seen it practised—in the vomiting of pregnancy. It did not relieve—and again he spoke from what he had seen—the gastric crises of tabes dorsalis. It was not of very much use in cases of carcinoma of the colon. In such cases and in many others he had known the operation of gastro-enterostomy to be practised. But in the right kind of case and, done in the right way, there was no operation in surgery which was better than gastro-enterostomy, and when physicians criticized it—as they had every right to criticize an operation, seeing, as they did, the surgical dust heaps—he would ask them rather to criticize the choice of that operation for a condition for which it was unsuitable. He had performed sleeve resection and was not very dissatisfied with it. He had seen it performed also on the Continent, to the satisfaction of some distinguished surgeons, though, they admitted, with occasional bad results. He had no quarrel with the operation; but it was a great thing to have ideals—ideals were not so much for attainment as for pursuit—and he himself was chasing the ideal of an absolutely perfect operation for patients suffering from chronic gastric ulcer. In his hands, and in the hands of those trained by him in Leeds, they had no fault to find with gastrectomy, and they found blemishes in every other method—not serious blemishes, but something short of perfection. Not long ago he was spending a week-end in Liverpool with Robert Jones and Harold Stiles, and the question arose as to what was the greatest weight he had ever seen put on by a patient after gastrectomy. He replied that he thought some patients had almost doubled their weight. But on reaching home that day he saw a new patient who was accompanied by another lady, and the latter by certain gestures and glances indicated that he ought to know her. He searched his mind in vain to identify her, and when at last she told him who she was he flatly denied it, saying that he knew that person very well. But having given him some convincing proofs that she was the person in question she consented to be weighed, and he found that if she had only put on seven pounds more she would have trebled her weight as it was before gastrectomy was done. He said to her, "You cannot blame me for not recognizing you. You see, I had not seen two-thirds of you before!"

In conclusion Sir Berkeley said that the things which made a surgeon's life worth while were not the things that he got for himself. They were not the titles he received nor the money he accumulated, nor the books he wrote. He had perpetrated a few literary efforts himself, and had been profoundly dissatisfied with every one of them. The thing that made the surgeon immortal was the spirit he imparted to the teaching of the men who were coming after, and he thought that Mr. Gordon Taylor, who knew the work in Leeds, would say that he had been the means of training some young men who could do these things just as well as he could himself, if not better. The legacy that he had always wanted to leave to posterity was a band of young men trained by him and inspired by his spirit, and he ventured to hope that that was one of his dreams which had come true.

On the motion of Mr. T. H. OPENSHAW a hearty vote of thanks was accorded.

CARDIO-VASCULAR CONDITIONS IN RELATION TO ANAESTHESIA.

AT a meeting of the Section of Anaesthetics of the Royal Society of Medicine on February 2nd, with Dr. A. L. FLEMMING in the chair, the relation of some cardio-vascular conditions to anaesthesia was discussed.

Dr. J. STRICKLAND GODDALL spoke on the systematic examination of the patient in a cardio vascular case. He admitted that the methods he described would be impossible in a large number of cases where, owing to the patient's condition, the examination had to be of the most superficial character. The ideal, however, was always to discover the exact state of the cardio-vascular system, and thereby minimize risk. It would not be long before every general hospital would have a proper cardiological department, under a trained cardiologist, where every case would be examined as a matter of routine before operation.

The examination of the cardio vascular system included the examination of the heart, the vasomotor mechanism of the vessels, and the respiratory pump. It was advisable to examine the patient three times: standing, lying, and after exercise. The face of the patient was instructive. They all knew the typical mitral face, and the difference in appearance when the cardiac condition was good and when there was failing; also the pale face of aortic disease, the dull yellow face of infective endocarditis, and the absolutely pallid face of pericarditis. If the patient was cyanosed one would look at his neck to see what the jugulars were like, at his fingers to see whether they were clubbed, and so forth. If the apex beat was visible its regularity or irregularity must be noted. On palpation the position of the apex beat and its character could be made out. A "slapping" apex beat meant that the ventricle did not contract well, either because it was degenerated or was subject to some toxic condition, or was not sufficiently stretched by adequate filling. A "heaving" beat meant only one thing—namely, ventricular hypertrophy. A third apex beat was made up of two distinct components, "slapping" and "shoving," and was almost always characteristic of a double lesion. If the apex beat was irregular the volume of the pulse would enable one to distinguish whether this was due to auricular fibrillation or extra-systole. If there was an intermittent thrill it was important to find out under what conditions it was intermittent.

On auscultation the quality of the first sound at the apex was important. The normal first sound was long, dull, and booming. This sound indicated the condition of the muscle and of the auriculo-ventricular valves. It might be short in any condition which interfered with the contractility of the ventricle. A reduplicated first sound meant a disturbance of the relationship between pulmonary and systemic pressure, as in mitral stenosis and arterio-sclerosis. The apex beat might be weak, or suppressed, or modified by the presence of a murmur. He believed that the systolic murmur at the apex, if of endocardiac origin, always meant leak through the mitral valve. The second sound of the apex might be distinct, duplicated, or modified by the presence of a murmur. At the base the aortic second sound was particularly interesting; normally it was short and sharp, but if accentuated it meant a high peripheral resistance and high blood pressure; if ringing and metallic it meant damage to the structure of the aortic valve. The aortic second sound was weak when the valve was inflamed; or it might be duplicated owing to inflammatory or degenerative change. Its absence did not necessarily mean that the aortic valve had not closed, but only that it closed so quietly as not to be heard. There were several different means of assessing the quality of the first and second sounds. The differential stethoscope was sometimes useful, and the electrocardiograph gave a graphic record of what the myocardium was doing at any particular time.

The worst hearts, from a myocardial point of view, in which an anaesthetic could be given were cases in which there was profound myocardial toxaemia, or definite degeneration of the myocardium. In aortic cases observation would be made of the vasomotor mechanism, which should be tested first for vasomotor stability and then for positive and negative vasomotor accommodation. He spoke in conclusion of the heart in Graves's disease, where the heart underwent a progressive degeneration. Cases of Graves's disease which died during or after operation were those in which the ventricular myocardium was damaged.

Sir BERNARD SPILSBURY said that for a number of years he had been very much interested in the subject of deaths under anaesthetics, and had had unusual opportunities of investigating cases. In 1913, in a Section of the International Congress of Medicine, he gave an analysis of 104 cases in which death occurred during or shortly after the administration of the anaesthetic. In all these cases he made the *post-mortem* examination himself. The anaesthetic employed was chloroform alone in 58, chloroform in mixture in 22, pure ether in 12, and other general anaesthetics in smaller numbers. The cases in which death was found associated with the condition of status lymphaticus numbered 32. In almost all these 32 cases a microscopic examination showed fatty degeneration, sometimes of the acute patchy type, easily recognizable in the *post-mortem* room, at others of a diffused fine type, giving rise to a pallor or sometimes a glazed appearance of the heart muscle, which was liable to be disregarded. In some of the remaining cases, although death had taken place under the anaesthetic, the anaesthetic was not the cause of death.

During the last nine years (1913 to 1922) he had studied 174 similar cases, which he had not been able to classify as completely. In this series the status lymphaticus cases numbered only 26—a considerable drop in proportion to the whole number. Quite a large proportion of these status lymphaticus cases were in the early years of life—8 out of the 26 in the first five years. In a certain proportion of cases, again, the anaesthetic probably played no part in causing death, and in some the cause was quite evidently pulmonary embolism or serious haemorrhage. In certain cases the patient was moribund when administration commenced; this was particularly so in cases in which stovaine was administered. In 9 cases stovaine was administered alone, and in 3 others it preceded some other anaesthetic, but all these patients were desperately ill at the time. In 56 cases pure chloroform had been used, and in 56 others chloroform mixtures, in 36 ether alone. In 10 per cent. of the casesnitrous oxide had been given, either alone or with ether, but these cases, again, were desperately ill. He systematically investigated the condition of the heart muscle in almost every case of the 174, and found fatty degeneration or brown atrophy or a combination of the two conditions in all but a very few (three or four). In four cases the anaesthetization had been of an exceptional character. One was a case of murder by the administration of chloroform; the victim was a healthy boy, and there was no disease of the heart muscle. Another was a case of suicide by inhalation of chloroform, and here there was a certain amount of brown atrophy. The other two were apparently accidental deaths, one of a chemist and the other of a nurse, both caused by the breaking of a bottle of chloroform, and in both there was a certain amount of disease of the heart muscle. Among the 174 cases there was not one in which there was fibrosis of the heart muscle; only one in which there was disease of the coronary arteries; only one in which there was pericarditis, and that of slight degree. In 5 there was valvular disease, and in 3 congenital disease of the heart, all in young children, who had other diseases also. Of cardiac lesions which were seriously important in connexion with the administration of anaesthetics, diseases of the myocardium took the first place; these pointed, in the vast majority of cases, to some toxic process, either chronic, as in the status lymphaticus cases, or acute, and the damage to the heart muscle, caused by this original poisoning, was extended up to a fatal result owing to the additional poisoning action of the anaesthetic.

Dr. GOODMAN LEVY said that there seemed to be a consensus of opinion among anaesthetists that, provided the circulation was not seriously disturbed, no cyanosis or marked dyspnoea being present, inhalation anaesthesia was generally a safe procedure in cases of cardiac disease. Yet if fatality should occur there was a tendency to impute responsibility rather to the state of the heart than to the anaesthetic. Recent information as to the mechanism of chloroform syncope must lead to an entire recasting of ideas on the relation of cardiac activities to this disease. So long as chloroform was regarded only as a cardiac depressant, and every case of syncope as a manifestation of an overdose, it was perhaps permissible to draw an inference as to correlation between chloroform syncope and cardiac disease. It happened, however, that the condition underlying chloroform syncope—namely, fibrillation of the ventricles—was essentially a manifestation of the healthy heart. In fact, a heart with depressed muscular action was less excitable, and hence less liable to pass into ventricular fibrillation, than a heart with a healthy muscle. Ventricular fibrillation also was less likely to occur when the blood pressure was low. There was no evidence that endocardial lesions or muscular degenerations predisposed in any way to chloroform syncope.

In the general discussion Dr. JOHN PARKINSON commented upon the absence of any rapid heart stimulant, though it was true that the conditions of heart failure were not alike, and it was improbable that one remedy, if it could be found, would meet all conditions. There were only two common irregularities—auricular fibrillation and extra-systole. Dr. Goodall looked rather more seriously on extra-systole than other cardiologists; current opinion was that extra-systoles, apart from other signs, had little significance. Mr. JAMES BERRY spoke on the value to the operating surgeon of electrocardiography and examination by a skilled cardiologist. In exophthalmic goitre cases particularly there ought to be free consultation between cardiologist, surgeon, and anaesthetist. There were two classes of cases in which, if he were operating with a young and inexperienced anaesthetist, he was a little fearful: one was the case of a fat and flabby person, whether he had a murmur or not, and the other the case of a person with advanced malignant disease, especially when there were cancerous glands at the root of the neck. Dr. JOSEPH BLOMFIELD said that the cases in which anaesthetists did want all the help which could be given to them were those cases in which the heart was degenerated or toxically affected, and in which there were no apparent signs to arouse suspicion beforehand.

Dr. GOODALL, in reply to a remark by Mr. BERRY, said that he did not believe in local anaesthesia in Graves's disease, nor in any condition which was to a large extent an "emotion disease." Adrenaline, injected into the circulation, would produce ventricular fibrillation. With regard to extra-systole, he thought it extremely rare to find this condition, which was an expression of hyperirritability, without some other associated evidence of cardio-vascular disease.

A REVIEW OF EPIDEMIOLOGY.

AT a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine held on February 2nd the President, Dr. R. J. REECE, C.B., delivered his inaugural address on "Progress and problems in epidemiology." Dr. Reece first described the aims of the founders of the Epidemiological Society, and pointed out that, although many of the most important papers in the *Transactions* were the work of men who had not served in the medical service of the State, the early days of the society were those of the activities of Simon, Netten Radcliffe, George Buchanan, and others, the value of whose epidemiological work could not be overrated. When the State Medical Department was transferred to the newly constituted Local Government Board in 1871, other men joined the service, and the study of epidemiology was continued by Power, Thorne-Thorne, Ballard, Barry, Parsons, T. W. Thompson, Theodore Thomson, Bulstrode, and many others whose names were household words in this society. He continued:

"Only last year one of our members, who joined the society in 1887, departed from us—my old colleague Robert Bruce Low, who, by his industry, skill, and perseverance, materially assisted in the advancement of our knowledge in regard to the prevalence and distribution of disease throughout the world. In a sense he continued the work which is specially associated with the name of Netten Radcliffe. While he held a strong view on many subjects, he had only one opinion, and that an honest one; and he was able to keep an unbiased mind, for he loved truth for truth's sake. His amiable disposition, courteous manner, and his readiness at all times to place his knowledge and experience at the service of his medical brethren, endeared him to all."

When the society was founded it advocated adequate endowment for medical research and, Dr. Reece thought,

they might congratulate themselves that with the advent of the Medical Research Council one of the primary objects of the society had been fulfilled. He next sketched the career of Sir Patrick Manson, who was a firm believer in the influence of the Epidemiological Society for good in promoting the study of epidemiology, and in his presidential address, in 1900, set forth the future lines of research to be followed.

"During the twenty-two years," continued Dr. Reece, "that have elapsed since Manson delivered the address there has been considerable stimulus in the study of pathology and bacteriology, sciences that directly improve our knowledge of epidemic disease though not of the epidemicity of disease. Many workers have entered these fields of study, but it cannot be said that there has been any comparable influx of workers in the domains of epidemiology. There are few men who have the time and opportunity to devote to this science, and however rich the reward that may fall to the successful worker from the fact that he has materially assisted in advancing knowledge and in affording relief to suffering humanity, it is nevertheless a sad truism that judged on the sordid basis of finance there are other branches of medicine that are more remunerative. To be able to work men must be able to live, and to be able to live necessitates the possession of the essential means of supporting life."

The President then reviewed the salient features of certain diseases communicable from other animals to man. Speaking of anthrax he said:

"For many years it has been known that the infection can be acquired by man through handling specifically infected skins. An instance occurred during the war in which Professor Tulloch of Dundee, then a lieutenant in the R.A.M.C., found *Bacillus anthracis* in the cerebro-spinal fluid of a man who was thought to have died of cerebro-spinal fever, and on continuing his investigation he was able to demonstrate that the infection had been acquired through the respiratory tract. By so doing he added another link to the chain of evidence that anthrax is one of the diseases that is air-borne. A more recent instance in connexion with anthrax which is of interest is that of a man who died of anthrax, and who, immediately prior to his fatal illness, had been engaged in unloading bone meal from a vessel in one of the London docks. Colonel P. G. Stock, who investigated the matter, was able to produce evidence that certain samples of the bone meal obtained from the cargo of the vessel were infected with anthrax, and the question at once arises whether the sporadic outbreaks of anthrax that occur among animals in this country are associated with the use of bone meal for manure."

Dr. REECE next dealt with the present position of plague, and remarked that with the disappearance of rats from vessels the possibility of plague being ship-borne from port to port became remote. He then reviewed the general epidemiological position of zymotics, emphasized the need of further research on general epidemiological lines, and concluded his address with the following words:

"Progress in the study of epidemiology is closely associated with precise observations in the wide realm of nature, and in the correct interpretation of these observations. This requires time and opportunity, patience and perseverance, enterprise and experience. There is nothing new or startling in this statement: it is 250 years since Sydenham wrote, 'true practice consists in the observations of nature.' The student in epidemiology can in all humility echo the avowal made by Fracastorius 440 years ago—'I am well aware that it is difficult to say what Heaven does effect and in what fashion, and to find a certain assured cause for every event.'"

On the motion of Sir WILLIAM HAMER, seconded by Dr. E. W. GOODALL, a vote of thanks to the President for his address was carried by acclamation.

CONCEALED ACCIDENTAL HAEMORRHAGE TREATED BY HYSTERECTOMY.

AT a meeting of the Edinburgh Obstetrical Society held on January 10th, with the President, Dr. LAMOND LACKIE, in the chair, Dr. WM. FORDYCE and Dr. R. W. JOHNSTONE read a note on a case of concealed accidental haemorrhage treated by hysterectomy.

The patient, aged 34, was seven and a half months pregnant, and had previously given birth to four children. At her first labour she had had eclampsia and severe albuminuria, which cleared up after the pregnancy. In each of the three subsequent pregnancies she developed albuminuria about the sixth month, but the condition was kept under control by treatment, the pregnancies going to term, and the child in each case being alive and healthy. In each case also the albumin disappeared completely soon after the labour. During her present pregnancy the urine had been repeatedly examined by her doctor and no albumin was ever found, the last examination being September 22nd. A week afterwards she was still apparently in perfect health, but on the morning of October 1st she was awakened by severe abdominal pain accompanied by sickness. The pain was chiefly over the appendix region, though there was tenderness over the whole abdomen. The pulse was slow, the temperature subnormal, and there was no oedema, and apart from pallor, which was more or less her usual habit, there were none of the usual signs of haemorrhage present. She was rather short, so that it was difficult to estimate the degree of tension of the uterus or the exact size of the uterus. The os was quite closed and rigid. About 8 oz. of darkly stained urine was drawn off, which was practically solid with albumin. This, together with the sickness, the slow pulse, and the fact that the pain became localized to the epigastric region, led at first to a diagnosis of impending eclampsia. Under treatment for this the patient seemed at first to improve, but in two hours her pulse rate had steadily increased and a brownish haemorrhagic discharge appeared from the vagina. A diagnosis of concealed accidental haemorrhage was then made and abdominal section was decided upon. While preparations were being made for this a copious vaginal haemorrhage occurred.

On opening the abdomen a considerable quantity of blood-stained serum was found. The uterus, which did not seem unduly tense, was of a bluish or purplish colour, like that of an ovarian cyst with a twisted pedicle with numerous haemorrhagic patches and a large haematoma in the right broad ligament which seemed to extend subperitoneally deeply into the pelvis. Supravaginal hysterectomy was performed, the patient appearing to progress favourably thereafter, and four days after operation the urine was completely free from albumin. After a somewhat prolonged recovery due to the development of a stitch abscess, phlegmasia alba dolens, and parotitis, she was preparing to go home at the end of six weeks when she suddenly became very ill and died from what was thought to be a slowly developing thrombosis of the pulmonary artery.

On opening the uterus it was found that the placenta had been almost completely detached by a large blood clot behind it, some of it recent, most of it older. On microscopic examination the separated portion of the placenta showed evidence of early infarction, crowding and congestion of the villi, and coagulation of the intervillous spaces. In many areas the whole muscular wall of the uterus was ploughed up by the escape of blood from the vessels. In some areas there were large haemorrhages separating the muscle bundles, while in others the haemorrhages were smaller and had caused separation of the muscle fibres. There was also considerable degeneration of muscle fibres, varying in degree, but showing itself for the most part in the loss of nuclear staining. Here and there, there was some fragmentation of the muscle fibres, which had a clear hyaline appearance. The findings did not throw any clear light upon the relationship between concealed accidental haemorrhage and albuminuria.

Gonococcal Infections of the Tubes and Ovaries.

Mr. DAVID LEES read a communication entitled "Some observations on gonococcal infections of the tubes and ovaries." He condemned the practice of promiscuous douching in gonorrhoea, and emphasized the importance of local therapy of the lower genito-urinary tract as a means of preventing ascending infection. In acute inflammatory gonococcal cases absolute rest should be enjoined, and the original focus of disease sought for and treated whether or not operative measures were employed for the treatment of such complications as salpingitis. Removal of one or both tubes was only the removal of the end-product of the disease and not a cure of the existing infective process in the rest of the genito-urinary tract. The infected uterus, cervix, and lower genito-urinary tract were still the sites of active disease and the patient continued to suffer ill health, was a fertile source of infection to others, and the disease might at any time flare up or give rise to other metastatic lesions, such as arthritis. Operation was rarely needed to save life and had the serious disadvantage that it sterilized the patient if both tubes were removed, whereas there was ample evidence to show that quite a number of such cases if treated by conservative measures made a good recovery and the tubes retained their function. The main principles of expectant treatment were rest in bed with liquid diet, and an ice-bag over the lower abdomen except during menstruation, when hot applications were preferable. The bowels should be well opened, belladonna or atropine sulphate given in fairly large doses, and sedatives such as bromides or hyoscyamus administered. The Fowler position assisted drainage from the uterus. Vaginal douching should be avoided while the pain was severe. When the acute abdominal symptoms had subsided hot antiseptic hip baths and careful local treatment of all foci of infection in the

lower tract should be carried out. Large vaginal douches at 112° F. helped to produce hyperaemia, prevented formation of adhesions, and hastened resolution. As soon as the temperature had subsided, usually about the second or third week, the patient should be given the benefit of fresh air, but exercise should be avoided. In addition to local treatment of the cervix and lower tract at this stage the insertion of vaginal ichthyol and glycerin tampons every second day was of benefit. Treatment through the blood stream by vaccines, detoxicated or otherwise, was essential in inaccessible lesions such as salpingitis, in order to make certain that the infection was eradicated from the tissues.

Pathological Specimens.

Dr. HAIG FERGUSON showed two specimens: (1) A large gangrenous submucous fibroid complicated by double pyosalpinx, acute appendicitis, and purulent peritonitis in a married woman aged 46, who had had an offensive vaginal discharge with pain in the lower abdomen for two years; panhysterectomy and appendicectomy was followed by a good recovery. (2) A cystic fibroma apparently growing in the broad ligament and unattached to the uterus, bearing a close resemblance before operation to an ovarian cyst, and during operation to a cervical fibroid. The patient was a multipara aged 42, and for three weeks before operation the tumour had been growing rapidly. It was shelled out of its capsule, and the uterus removed by supravaginal section, along with both ovaries and tubes.

IRISH HOSPITAL FINANCE.

THE Section of State Medicine of the Royal Academy of Medicine in Ireland met on January 12th, with the President, Dr. T. HENNESSY, in the chair, when Dr. HORACE LAW read a paper on hospital finance. He said that in spite of the deficit incurred during the war the hospitals of Dublin were not in serious debt. For many years past, however, the annual income had not balanced the expenditure and was supplemented by bequests which were used as income. He sketched the development of the Board of Representatives of the Associated Dublin Hospitals, which had been engaged chiefly in studying the means of increasing income. The ideal method, he believed, was for the people to subscribe small weekly sums when well, so that the hospitals might care for them when sick. An agreement with one of the branches of the Irish Transport and General Workers' Union had been made embodying this principle, and a system of payments by urban and rural sanitary authorities for necessitous patients coming from their areas was in force in connexion with about sixty of these bodies. Arrangements had also been made with the National Health Insurance Commissioners whereby the approved societies might include hospital benefit as one of their extra benefits. Under the scheme of the Board of Representatives the patient had free choice of hospital, the payments being made by the Board to each hospital in proportion to the work done in treating patients. While acknowledging the economy and increased efficiency which would result from amalgamation of hospitals, he thought the matter at present impossible of achievement. Further, he pointed out that the smaller hospitals permitted of the patient being individualized, with the result that the patient subsequently took an interest in "his hospital."

Sir JOSEPH GLYNN said that State control would kill the hospitals, and should only be accepted as the last possible expedient. There were two ways in which the question could be approached: First, the rate in aid, which would come through the county councils, but he was not in favour of this scheme: if any one of the twenty-six counties stood out there would be difficulties. Secondly, the grant in aid, the scheme which he thought the better—and which was used in connexion with child welfare schemes at present working in Ireland. Incidentally he was of opinion that some of the hospitals in Dublin could make claims on that scheme. He thought that for every £1 which was raised by contributions, fees, or any other means for the hospitals, £1 should be given by the State, up to 50 per cent. of the annual expenditure of the hospitals.

Sir JOHN MOORE said that one point which was worthy of consideration was the proposal of a State grant to provide equipment for the hospitals, which was a very expensive item, and one which he thought should hardly be a charge on the voluntary subscription lists of the hospitals.

Sir JAMES CRAIG said that he personally opposed State aid where State aid meant State control. He had heard the Minister of Home Affairs give a very explicit account of lotteries for hospitals. No matter how much control the Government exercised, they could not tell how much fraud went on in connexion with these. The Minister said that he would not allow these lotteries to go on unless a bill was brought in by some private member legalizing lotteries in connexion with charitable institutions.

Dr. R. J. ROWLETTE said that some years ago the hospitals came to the conclusion that they were admitting, and treating free of charge, patients who were well able to pay for their maintenance, and they therefore decided that all patients should contribute as far as they were able to the funds of the hospital. Some of the members of the various hospital boards had thought that this payment by patients would mean a gold mine to the hospitals, and in his opinion they had encouraged it too much. He had suggested long ago that if the hospitals relied too much on payment from patients they would injure both the patients and the hospitals. There was one question which had not arisen here yet, but which would later on, in connexion with payment from the patients. The British Medical Association had said that a definite proportion of the funds which were contributed by the patients towards the maintenance of the hospital should be placed at the disposal of the hospital medical staff. If the hospitals were not charitable institutions there would be no claim on the medical staff to give their skill and time free to these institutions.

The PRESIDENT said that the Dublin hospitals were worthy of support, and of the usual charitable donations which they had received in the past, but they were also worthy of a grant from the State. Very few of the hospitals in Ireland were fully equipped to carry out either surgical or medical work in a really efficient manner, and some of the country hospitals had been closed, with the direst consequences to the people. The British Medical Association had given this subject a great deal of consideration, and had approached it from the medical point of view. Patients admitted to hospital should come under three classes: (1) free or indigent patients, (2) tariff patients, and (3) paying patients.

A MEETING of the Obstetrical Section of the Royal Academy of Medicine in Ireland was held on January 19th, with the President, Dr. BETHEL SOLOMONS, in the chair, when Dr. L. CASSIDY read a paper on pelvic pain from a gynaecological standpoint, which was followed by a discussion. Dr. J. F. CUNNINGHAM demonstrated Kielland's obstetric forceps, which were smaller and lighter than the usual forceps, and were being used increasingly in Vienna. Dr. J. T. SIMPSON showed two urethral calculi, which had caused dystocia. Dr. L. CASSIDY said that he was of opinion that the obstruction was probably caused by the fullness of the bladder, an opinion with which Dr. SOLOMONS agreed.

A CLINICAL meeting of the West Kent Medico-Chirurgical Society was held at the Miller General Hospital, Greenwich, on January 12th, with Dr. E. W. FARMER in the chair. Dr. HILDRED CARLILL showed three cases: (1) A man who suffered from encephalitis lethargica and syphilis of the nervous system; he was unable to wash his face, his features were expressionless, and he had diplopia with unequal pupils. He was treated with one-hundredth of a grain of hyoscine twice a day. (2) A man, 53 years of age, who suffered from tabes dorsalis, with Charcot's disease of the tarsus, and lightning pains in a lower limb amputated ten years ago. His lip was thought first to be sarcomatous and then tuberculous. His pupils were unequal, the ankle-jerk was absent, pressure on the tendo Achillis was not painful, the knee-jerk was present, and there was analgesia of the ulnar nerve. (3) A boy of 13 years, who flexed his neck and spine whenever he spoke; he was able to say a few words without doing so by taking a deep inspiration between each word. Dr. E. P. CUMBERBATCH showed (1) a case of pigmented mole treated by fulguration, and (2) a case of epithelioma of chest treated by diathermy. Dr. ARTHUR DAVIES showed a man of 24 years who was fat, short, with scanty hair, and sexually normal, the underdevelopment being presumably due to polyglandular insufficiency. Dr. E. F. SMITH showed (on behalf of Mr. C. A. JOLL) two cases: (1) A man who had suffered from appendicitis six years previously, a fistula developing which required two operations for its excision. (2) A man aged 21, with the appearance of a boy of 12 years; *x*-ray examination showed neoplasm of brain; he had been treated with 5 grains of thyroid extract daily.

Reviews.

THE POISONS AND CHARM CURES OF MALAYA.

A SECOND enlarged edition of Dr. JOHN D. GIMLETTE's book on *Malay Poisons and Charm Cures*,[1] of which the first appeared in 1915, has now been issued. He writes with authority, for not only has he spent more than twenty years in Malaya, but he has had very unique opportunities for obtaining information; the late Sultan of Kelantan was kind enough to depute the Secretary to the Kelantan Ecclesiastical Council and two of the medicine men to the Royal household to assist Dr. Gimlette in preparing the second edition of his book. In a foreword Sir William Willcox mentions that the Government of the Federated Malay States has given its support to the publication of the book, and points out that a large proportion of the poisons and drugs mentioned are potent substances with unknown active principles, so that they offer a promising field for research. Dr. Gimlette's book will interest many classes of scientists; it is of value to the anthropologist in that it gives an accurate first-hand account of native folklore, much of which is of a secret nature, and it is of very great interest to the pharmacologist for the reason mentioned by Sir William Willcox. It is not surprising to learn that the first edition was used extensively as a reference book in poison trials in the Malay States.

The book is chiefly concerned with the work of the "bomor," or medicine man, who is an important figure in Malay society. Clinical medicine and magic are closely allied in Malaya, and the medicine man deals in both. The origin of the magic employed is complex; it has its foundations in the original animistic beliefs of the Malays, and upon this stock have been grafted both Brahmin and Mohammedan superstitions. The final results are charms and incantations of a purely pagan nature, commencing and ending with prayers to Allah, a compromise being thus established between the ancient folklore and the newer creed of Islam. The "bomors" are of various classes: some are simple village medicine men, others are priest-physicians and masters of the occult sciences, whilst a few are dangerous characters who specialize in poisons. Dr. Gimlette describes in detail various interesting charms, incantations, and spells, some of which, he says, are secret, being known only to a limited number of "bomors."

The greater part of the book is devoted to a description of the various poisons in use in Malaya. About twenty animal preparations are mentioned which appear to contain definitely toxic substances; these are chiefly derived from poisonous fishes, toads, and insects.

The vegetable poisons of Malaya are numerous and potent; some are well known to European medicine—for instance, *Croton tiglium* (croton oil), the upas tree, *Antiaris toxicaria*, and the upas climber, *Strychnos tieuté*, the active principle of which is brucine.

In addition to these a considerable number of very potent substances are described by Dr. Gimlette which are new to European medicine. Malaya is indeed extraordinarily rich in vegetable poisons; the poisons used by the wild tribes on their arrows are in many cases complex preparations; as many as thirty different substances are known to be employed by the various tribes for this purpose. The arrow poisons are very deadly, and it is stated that five arrow wounds suffice to kill an elephant.

Criminals show a considerable ingenuity in choice of poisons. The harmlessness of powdered glass is recognized, and it is seldom given alone. Numerous vegetable poisons are employed. Several specimens of datura are known which contain hyoscine, and these plants are used to produce stupefaction. The plant is burnt beneath the bamboo huts, and the fumes are stated to produce unconsciousness; this device is used by thieves.

It is, however, interesting to learn that in spite of the immense variety of unknown and potent vegetable poisons, criminals employ largely the common minerals arsenic and potassium cyanide. The ancient device of treacherously killing a guest by poisoning one side of a knife is known in Malaya: the knife is smeared on one side with potassium cyanide and honey, and the poison is administered during the cutting up of a water melon. The antidote for cyanide poisoning is complex, since it contains the helmet of the soft-billed hornbill, the tusk of an elephant, and the bones of a dugong. This mixture is almost more surprising than a formula in modern polyglandular therapy.

[1] *Malay Poisons and Charm Cures.* By John D. Gimlette, M.R.C.S., L.R.C.P. Second edition. London: J. and A. Churchill. 1923. (Demy 8vo, pp. 260; 2 illustrations. 8s. 6d. net.)

EPILEPSY.

EPILEPSY, though a disease which can never fail to attract attention or to demand relief, is accorded in many textbooks only the most conventional description. Hence we welcome Dr. CESTAN'S monograph,[2] for the wider the experience of the observer the more fully is he impressed by the complexity of the disease and the difficulty of its treatment. Dr. Cestan gives a good account of the various forms of epilepsy, both those which are symptomatic of some underlying disease and that peculiar disorder known as idiopathic or essential epilepsy. The clinical features of the epileptic attack, both the grand mal and the petit mal, are carefully and fully described. Next the peculiar features of the Jacksonian, or, as our French colleagues term it, the Bravais-Jacksonian, attacks are considered and their significance discussed. In a chapter on the mental disorders which may complicate the disease, the so-called psychic equivalents and the varieties of the post-epileptic state receive careful attention, the subject being illustrated by many valuable clinical cases. A short but useful chapter on its medico-legal aspect, especially in relation to criminal responsibility, is of great interest at the present time.

The differential diagnosis between hysteria and epilepsy is often not the relatively simple matter the author would have us believe; the truth of this is indeed well illustrated by an admirable anecdote of Trousseau's quoted by the author. Very debatable ground is traversed in the brief section on the pathogenesis of the epileptic syndrome, and we may regret that so little is said as to the possible relations of abnormal "protein sensitivity" in this disease.

The epileptiform attacks occurring in cerebral lesions, both traumatic and other, are adequately described, as well as those forms found in various states of toxaemia, such as uraemia and eclampsia. The various theories as to the etiology of idiopathic epilepsy and its relation to infantile convulsions are fully discussed, and practical deductions of value for prognosis and treatment are made. The concluding section on treatment is good and concise and commendably free from prejudice. We note with interest the author's favourable opinion of the value of luminal, or gardenal, as it is termed in France.

Perhaps the author might have insisted more on the fact that every epileptic is a law unto himself, and that every case should be studied strictly on its merits, especially in regard to treatment. Little reference is made to the claims of those who urge the value of psychotherapy, but whether this omission is due to conviction or to lack of knowledge we know not. Altogether a very readable book, it cannot be said to teach the profession anything new. But as a monograph to supplement the ordinary textbook for the student we have nothing but praise for it.

[2] *Les Epilepsies.* By Dr. R. Cestan. Paris: Masson & Cie. 1922. (Cr. 8vo, pp. 275. Fr. 7.50.)

THREE TEXTBOOKS OF DERMATOLOGY.

OF making many books there is no end, especially in America. What is more remarkable is that America, with but a little help from this side of the Atlantic, appears quite able to absorb them. Here are three noble volumes devoted to the science and art of dermatology, each of which has succeeded in living beyond its initial edition; one of them, Schamberg's, has now attained its fourth. There is a very considerable similarity between these books. They each take as their province the whole of the subject, and thus a large proportion of each is composed of second-hand information culled from the works of previous writers, to whom each of the authors duly acknowledges his indebtedness. Consequently the personal note, which is so valuable and makes a textbook so much more interesting, is only occasionally heard. Each work is profusely illustrated with photographs, most of them quite good, and with a few coloured plates, which are not so good. Moreover, although the illustrations are of different patients, the authors have selected cases of such similar characteristics that the pictures would be quite easily interchangeable between the volumes. Each adopts substantially the same classification, that of Hebra, which was originally entirely pathological but lately has been modified by modern discoveries of the etiology of many dermatoses.

especially of infective conditions. Each is well and clearly printed on nice thick smooth paper, and they are all published at about the same price, which is somewhere between £1 and £2.

No revolutionary doctrines will be found in any of them, but each is pretty well up to date and abreast of the latest advances which have been made in the subject. Owing to modern facilities for travel dermatologists in every country have frequent opportunities of meeting one another, and consequently they, as a rule, come to a common decision on most points, and there is not much room left for marked differences of teaching on important matters. This common standpoint does not, however, prevent most dermatologists from producing textbooks of the subject, which in consequence are sound enough but distressingly devoid of originality. Sometimes, when they consider the number already before the medical public, their consciences compel them to apologize for the new arrival in the inevitable preface, and they next proceed to point out that they have produced something unlike all its predecessors. But an unprejudiced student of dermatological literature is often hard put to it to discover the novelty claimed.

Of the three volumes now before us Dr. ORMSBY'S[3] is the biggest, chiefly because he devotes more attention than the two others to the literature of the subject, the references are fairly copious, and he has attempted a complete treatise on the subject. In fact his book bids fair to become a serious rival to Stelwagon's well known work, but at present it is not so complete. In the study of tropical dermatoses American dermatologists have a certain advantage over their British brethren, for the tropics lie almost within their own borders and they are not, as we are, dependent for their material for observation on chance sea-borne cases. All the authors whose books are now under consideration have availed themselves of their facilities in this respect, and one of them, Dr. HAZEN,[4] has made a special study of skin diseases as they are seen in the negro; for this he has enjoyed exceptional opportunities, for he practises in Georgetown, District of Columbia, which is not far from the old slave states. The chief peculiarities seem to be that the skin of the full-blooded negro is more resistant to external irritants than that of the white man, though the mulatto does not enjoy this relative immunity; acute forms of irritant eczema are not so frequent in negroes, and the common septic disorders—impetigo, boils, and abscesses—are neither so common nor so severe. Psoriasis is rare and lichen planus infrequent. More interesting still is the fact that cutaneous carcinoma is comparatively uncommon, owing probably to the fact that even in the aged negro who has spent most of his life in the open air the senile degenerative changes manifested by scaly dry spots are almost unknown. On the other hand, keloid is well known to be more common among negroes than whites, and so is leucodermia. Syphilis also is more common among negroes, but this is probably due to economic rather than racial causes.

The most distinguishing feature of Dr. SCHAMBERG'S book[5] is the large amount of space he gives to the eruptive fevers. He is evidently one of those favoured dermatologists who have had exceptional opportunities for studying them. Most dermatologists have had to surrender that portion of their subject to the superintendents and other medical officers of fever hospitals. His article on small-pox is particularly full and interesting. He also has a useful section on *x*-ray treatment. It appears that in America the Sabouraud pastille, for some reason or other, probably atmospheric, does not register properly. Hence the Americans have been compelled to work out an electrical formula for timing the exposure. As the ordinary gas tube cannot be relied upon to give always the same dose under the same conditions American dermatologists are almost obliged to use the Coolidge tube for treatment since that, up to the present, is the only tube which gives uniform results. Dr. Schamberg's work, of course, is well known to all dermatologists, and his name will always be associated with the peculiar pigmentary disease of the skin called after him. In this volume he demonstrates his modesty by devoting only a very few lines to its description. He might justifiably have given more, for since he first described it other observers have shown that it is by no means so uncommon as was thought at one time. Some of his other sections are a little scrappy—that, for example, on drug eruptions, one of the most important subjects in dermatology for the general practitioner.

In conclusion, it may be said that from each of the three books here dealt with the student or practitioner may gain a sound knowledge of the subject so far as it is possible to do so from a textbook, but, as we began by stating, there is no really outstanding feature about any one of them.

[3] *A Practical Treatise on Diseases of the Skin.* By Oliver S. Ormsby, M.D. Second edition. Philadelphia and New York: Lea and Febiger. 1921. (Med. 8vo, pp. xiv + 1166; 448 figures.)

[4] *Diseases of the Skin.* By H. H. Hazen, A.B., M.D. Second edition. London: Henry Kimpton. 1922. (Roy. 8vo, pp. 608; 240 figures. 37s. 6d.)

[5] *Diseases of the Skin and the Eruptive Fevers.* By J. F. Schamberg, A.B., M.D. Fourth edition. Philadelphia and London: W. B. Saunders Co. 1922. (Med. 8vo, pp. 626; 265 figures. 25s. net.)

THE EVOLUTION OF CONTINUITY.

DR. DAVID RUSSELL, in his book *The Evolution of Continuity*,[6] has set himself the task of demonstrating that one evolutionary principle rules throughout all nature, and that, true to this principle, all matter has been evolved into being, and the many fundamental species of dead and living matter have been differentiated. He contends also that the outstanding phenomena of living growth and reproduction reflect the action of the common factor behind all evolution. For the purpose of his thesis, as there is no such thing as absolute continuity of matter in the natural world, the word "continuity" is used to express that more or less firm attachment of component elements which resists the forces making for their severance or dissipation into wide discontinuity. Thus he explains, "the atom preserves the relative continuity of its system of revolving electrons, the living cell its protoplasmic continuity, and our bodies their cellular and tissue continuity." Though maintaining that the underlying principle is the same for all forms of matter Dr. Russell devotes the greater part of his book to the evolution of the living species and the development of the theory that this is based on the fundamental evolutionary principle, the evolution of continuity. His view seems to be that though the general principle of natural evolution is on an unshakable basis, the bed-rock of the process has never been clearly displayed, mainly because all investigators have hitherto accepted the dictum *Natura non facit saltum*. Dr. Russell believes that nature does take leaps, small and large, and that modifications of type must essentially be always sudden. Unless we mistake his meaning, his contention is that though a more perfect geological record would provide invaluable information, yet, unless his theory is accepted, there would always be large gaps in the chain of evidence, "missing links" which could only be satisfactorily explained by the view that nature in the course of evolution had never seen fit to forge them.

The author formulates four fundamental laws of growth: 1. All growth is a manifestation of the forces of attraction and repulsion in action. 2. Fertilization produces multicellularity. 3. Environment produces continuity. 4. Continuity produces arrest, and, with arrest, control—that is, the power to maintain, arrest, or release from arrest. A breakdown of the control system entails the complete discontinuity of the individual's parts, the loss of identity, death. He traces the application of these laws from the lowest forms of life to the higher and more complex forms. He explains the formation of abnormal growths or tumours as being due to the action of diverse agencies which cause an initial break of cellular continuity whereby the normal process of cell arrest is broken. In working out his theory Dr. Russell combats the Darwinian view that the variation to which must be attributed the origin of subspecies may be due to a variety of causes; he holds that variation has been acquired from environment only, and that the acquisition must have been sudden. He sums up his main argument thus: "All characters have originated as acquired variation under the influence of environment. Life itself originated as an example of such variation."

Dr. Russell's opinions are expressed in such a thoughtful and scholarly manner that they at least merit the careful consideration of biologists.

[6] *The Evolution of Continuity in the Natural World.* By David Russell, M.D. London: George Allen and Unwin, Ltd. 1922. (Demy 8vo, pp. 278; 93 figures. 16s. net.)

THE COURSE AND PROGNOSIS OF PHTHISIS.

IN a small book on the cure of pulmonary tuberculosis,[7] Dr. R. BURNAND deals not with the diagnosis, nor with the pathology, nor even primarily with the treatment of phthisis, but with the clinical course of the disease followed from the outset

[7] *La Guérison de la Tuberculose Pulmonaire.* By Dr. R. Burnand. Paris: J. B. Baillière et Fils. 1923. (Cr. 8vo; pp. 198. Fr. 6.)

to its arrest or fatal termination. It is a subject which is quite inadequately treated, even in pretentious textbooks, and, though there is nothing original in the matter, the author has succeeded in bringing together into a small compass a considerable amount of information scattered through original papers and memoirs not readily available to the general reader. Tuberculosis is different in many ways from other diseases: it is one in which a cure in the sense of a *restitutio ad integrum* does not take place, while often the best that can be hoped for is the establishment of an equilibrium between the patient and the invading bacillus. He emphasizes this point very carefully. He points out that though tuberculosis may be the most curable of chronic diseases, it is also the most chronic of curable diseases, and that therefore prolonged treatment continued diligently and conscientiously for the rest of the patient's life is essential if the primary arrest is to be maintained. This is especially important as those who are clinically cured of the disease tend gradually to lose their immunity, and unless particular care be taken as to the hygieno-dietetic mode of living serious relapses may occur even after several years. This somewhat gloomy view of the prognosis of tuberculosis he supports by extracts from the statistics at Leysin.

The main portion of the book is occupied with the actual study of the progress of the disease, considered from a clinical standpoint. Accepting Bard's classification, Dr. Burnand divides pulmonary tuberculosis according to its anatomical seat of attack—that is, as to whether it affects the parenchyma, the interstitial tissue, the bronchi, or the pleura. Any case of phthisis referred to one of these categories—which are, of course, amplified—tends to evolve along a certain definite line, so that a case primarily of caseous type will tend to remain caseous, one of a chronic fibrosing type will tend to retain its tendency to fibrosis, and so on. It is the more or less distinctive autonomy of each of these classes which he then proceeds to describe. Passing on, he deals with individual symptoms, and indicates the amount of weight which is to be attributed to each in judging the condition of the patient. Great stress is laid on the limitations and the difficulties in interpretation of auscultatory findings. These at best furnish a knowledge of the local lesion in the lung, but they can afford no idea as to the general resistance of the body. The effect of therapeutic measures on the progress of the disease is considered briefly and the criteria of recovery laid down. In his opinion, speaking generally, it is unwise to pronounce the word "cure" till the patient has been free from all signs of active tubercle for a year—a year, too, in which he has returned completely to his normal mode of life. We have every confidence that this book will be of considerable value, especially to those whose knowledge of the disease is limited by their lack of experience in following its course. In recommending it to our readers we feel that it is only necessary to point to the distinguished name of its author, Dr. Burnand, the Medical Director of the Leysin Sanatorium, to ensure its welcome reception.

RENAL AND GENITO-URINARY DISEASES.

Reins et Organes Génito-urinaires,[8] by MM. BRAULT, COTTET, MICHON, LEMAIRE, LOUSTE, and HAZARD, is the thirteenth volume of the treatise on medical pathology and therapeutics appearing under the direction of Emile Sergent, L. Ribadeau-Dumas, and L. Babonneix. Ideas concerning the kidneys, the physiology of urinary excretion, and the pathology of nephritis are in such a state of flux that any work which gives a precise and clear view of the subject is to be welcomed. In the volume under review the task of making a survey of this interesting portion of the field of medicine has been entrusted to Drs. Brault, Cottet, Michon, Lemaire, Louste, and Hazard. The subject is difficult; no one can look at the literature on, say, the classification of the different forms of nephritis without being impressed by the great divergency of views. So is it with such subjects as the estimation of renal function, the pathology of uraemia, and the relation of vascular to renal lesions in certain forms of nephritis. The sympathy of any reviewer must, therefore, be extended to authors grappling with such subjects. It cannot, however, be said that those responsible for the volume have succeeded. The reader loses himself amongst a mass of facts, and when he lays down the volume will probably have no clearer view of renal pathology than he had when he started. It is indeed difficult to know exactly to what class of student the volume will appeal. To the ordinary medical man who has made no special study of the genito-urinary system and its diseases it will provide stiffer reading than he is prepared to tackle. For the expert urologist it presents deficiencies that will prevent it from being of any more value, for it cannot be regarded as a work of reference. The literature on which it is based is almost entirely French; little reference is made to the work of foreign authorities.

In the second part of the work are sections dealing with diseases of the genital system, both male and female, whilst the third part is devoted to the analysis of urine. With the exception of some figures in the last section, the book is entirely without illustrations. In this respect it differs from some of the other volumes, notably the excellent volume by Legoux and Papin on urology, but the presence of a few more suitable plates and diagrams would have done much to make the reading of this volume an easier task.

[8] *Traité de Pathologie Médicale et de Thérapeutique Appliquée.* Published under the direction of E. Sergent, L. Ribadeau-Dumas, and L. Babonneix. Tome xiii, *Reins et Organes Génito-urinaires.* Paris: A. Maloine et Fils. 1923. (Demy 8vo, pp. 891; 61 figures. Fr. 35.)

AN INCOME TAX GUIDE.

THE *Income Tax Guide*[9] issued by Messrs. Nelson has been prepared by a competent writer on proper lines, and is published at a reasonable price. Mr. SULLEY'S service as an inspector of taxes has evidently shown him what is expected from such a handbook; for instance, he includes in his survey that separate application of the law and practice to the manufacturer, the tradesman, the professional man, the employee, etc., which is the help usually found to be most effective, but which is seldom if ever supplied at so low a price. Indeed, the matter is carried even farther, seeing that the chapter on the professional man's difficulties is subdivided, and those of the doctor, the lawyer, the clergyman, and others are dealt with separately.

The author's official experience is drawn upon to supply useful hints; his plea for accuracy in detail—"Round figures should always be avoided; they are officially suspect"—carries force, and his *obiter dictum* on the attitude of General Commissioners towards appeal proceedings might well be remembered by intending appellants—"that body dearly hates to have long or frequent sittings and to have to listen to small matters." The section dealing with the doctor includes a model form of account, with a specimen list of working expenses, for ascertaining the average liability, beside other information which should prove useful. Such matters as the adjustments obtainable where one person succeeds to a practice carried on by another, the procedure for obtaining repayment, and so on, are effectively dealt with. There are, of course, imperfections—for instance, the special allowance of £45 in respect of wife's earnings is no longer conditional on their being independent of the husband's earnings; and, in a somewhat similar connexion, the wife of a husband who has no residence in this country is not, in general, assessable in respect of remittances from his earnings, though the note on page 27 would lead the reader to assume the contrary. On the whole, however, this little book can be recommended as giving as good value for the price as can be obtained anywhere in this field.

[9] *Nelson's Income Tax Guide.* By P. Sulley. London, Edinburgh, and New York: T. Nelson and Sons, Ltd. 1923. (Cr. 8vo, pp. 221. 2s. net.)

NOTES ON BOOKS.

THE thirty-third edition of *Burdett's Hospitals and Charities*[10] has recently been published, and although the range of information has been increased it has been found possible, by the exclusion of all obsolete matter and by condensation and revision, to reduce the size of the volume by over a hundred pages. The military and naval section has been augmented, particulars of hospitals where the Ministry of Pensions has financial liability have been added, the new names of Poor Law infirmaries are given, with a list of the local committees set up by the Voluntary Hospitals Commission appointed by the Ministry of Health. The first 66 pages deal with hospital finance, the classified lists, with the analysis of the expenditure under different heads and the sources of their incomes, being particularly useful. Then follows the detailed directory of hospitals and other charitable institutions, occupying some 800 pages, and including hospitals not only in Britain but in the dominions, colonies,

[10] *Burdett's Hospitals and Charities, 1922-23.* Founded by Sir H. Burdett, K.C.B., K.C.V.O. Thirty-third year. London: The Scientific Press, Ltd. 1923. (Cr. 8vo, pp. lxxxvi + 875. 17s. 6d. net.)

America, and other foreign countries. It is interesting to note among the many other details that in Australia, although the hospitals appear to be managed by elected committees of subscribers, large grants are made by the Government. In connexion with the American hospitals the size of the medical staffs is noticeable, particularly perhaps in the special hospitals of New York; one of the New York eye, ear and throat hospitals, for instance, with 175 beds, has a staff of thirteen consulting surgeons and two physicians, thirty-four surgeons and eight clinical assistants in the ophthalmic department, thirty-four surgeons and five clinical assistants in the aural department, forty-three surgeons and five clinical assistants in the throat department, and seven house-surgeons—nor is the size of the staff of this hospital unusual as compared with others in that city.

In the preface of his monograph, *Anaesthesia in Children*,[11] Dr. HEWER states that "most of the elementary teaching has been omitted. . . . As far as possible simple methods have been described in order to make the book more useful to the general practitioner who is unable to employ complicated apparatus." Yet among the illustrations one finds figured Boyle's gas and oxygen apparatus, the direct vision laryngoscope, Rood's apparatus for infusion anaesthesia, the Davis gag, and the Yankhauer combined pressure and suction outfit; moreover, in several cases the methods for using such apparatus are fairly fully explained in the text. It is, however, unlikely that the average general practitioner will go to the expense of providing such instruments. Though the author can hardly be said to have achieved his object of describing only simple apparatus, there is little fault to be found with his teaching. As is but natural, ethanesal comes in for a full description at the hands of its pioneer administrator, and various little "gadgets" invented by him are also described. Should a second edition be called for the author will do well to revise the text carefully in order to remove some literary blemishes which have escaped his eye.

Judging from the output in America of handbooks intended for non-medical readers, the lay public seems more open in the New World to personal education on health subjects than in this country. *Personal Hygiene Applied*[12] is a book of this class; in the course of fourteen chapters the author, Dr. J. F. WILLIAMS, discusses the application of the principles of hygiene to the various functions and organs of the body—the muscular and skeletal systems, nutrition, respiration; the circulatory, excretory, and nervous systems; the sexual aspects of life; the mouth, eye, and ear; the prevention of specific disease, and other such matters. The author deals faithfully with Christian Science, osteopathy, and the occult. Here and there in the volume he takes the opportunity to expose "prescription fakes" and misleading advertisements. He discusses the forces of instinct and of intellect in determining human conduct, and urges that the ideal of social responsibility arises out of the nature of life, each individual being a link in the chain of life, and an heir to the inheritance of life, with its responsibility. The book is well fitted to fulfil its purpose.

Dr. WILLIAM WILSON'S *Handbook of Aural Surgery for Students and Practitioners*[13] would have been better described as a synopsis of otology, for the work takes that tabulated literary form which is becoming ever more familiar, and the author does not confine himself to the surgical side of his subject. Descriptions of some recent operative methods have been introduced into the text which seem a little out of place, having regard to the scope of the book as expressed in its title. It is hardly likely, for example, that either a student or a practitioner will be called upon to perform an elaborate operation on the labyrinth, whilst the style of the book, though convenient for reference, makes consecutive reading difficult. Where economy of space is of importance in order to cover a wide range of topics this method of writing may be justifiable, and for those who take their reading as a draught of medicine the book can be safely recommended; but anyone who expects to derive pleasure as well as instruction will, we fear, be disappointed. The information and advice given are clear and on the whole orthodox; but the author is at some pains to point out that he considers himself in certain respects in advance of opinions generally accepted, and especially of those likely to be held by examiners. The book should serve as a useful introduction for anyone taking a course in the subject, though unnecessary stress is laid upon rare conditions and upon elaborate operative procedures seldom required and difficult to perform.

Professor MAX NEUBURGER of Vienna deserves our gratitude for bringing out in facsimile the original edition of Leopold Auenbrugger's *Inventum Novum ex Percussione Thoracis Humani, ut Signo Abstrusos Interni Pectoris Morbos Detegendi*[14] (1761), and also the translations into French by J. N. Corvisart (1808), into English by Sir John Forbes (1824), and into German by S. Ungar (1843). This interesting reproduction is rendered more complete by Professor Neuburger's biography of Auenbrugger, which contains two facsimile letters to his senior contemporary the omniscient Albrecht von Haller of Bern. Of the three portraits in the volume two are of Auenbrugger, that inserted at the beginning of his life being the better; the other portrait is appropriately that of Corvisart. Auenbrugger published the *Inventum Novum* when he was 38 years of age, but it was years in advance of the times and did not receive its due recognition until Corvisart's influence brought its principles into medical practice. Corvisart's translation appeared the year before Auenbrugger's death in 1809. This well printed volume will appeal to the growing number of those interested in medical history.

Willing's Press Guide[15] is a useful work of reference containing a list of the newspapers and periodicals published in Britain, with particulars of their date of foundation, politics (if any), date of publication, price, and address; lists are also given of overseas, American, and of the principal newspapers printed in various countries, as well as of Continental newspapers published in the English language. The British periodicals are further divided according to their interests, professions, trades, sciences, and subjects; the London addresses are given of colonial, foreign, and provincial newspapers, and provincial newspapers are also arranged according to the counties and towns where they are published. An interesting couple of pages are devoted to those newspapers and periodicals which date back to the seventeenth and eighteenth centuries: with the exception of the official *Gazettes* of London (founded at Oxford in 1665), Edinburgh, and Dublin, the earliest newspaper in Britain appears to be the *Worcester Postman* (subsequently called *Berrow's Worcester Journal*), which was founded in 1709.

Small-pox and Vaccination in Barbados. Dr. JOHN HUTSON, who holds the office of Public Health Inspector for Barbados, has reprinted as a pamphlet three articles he contributed to the local press in exposition and defence of vaccination. Thirty years ago Dr. T. L. Gaskin had taken similar action to counteract prejudice then existing. It appears that recently there had most unfortunately occurred two deaths in one household within two weeks after vaccination, and this naturally caused a revival of antivaccination writings. Dr. Hutson's articles show close and extensive knowledge of the subject, and are written calmly and convincingly. They ought to have much effect with reasonable readers, and should evoke the thanks of all who are interested in the protection of the inhabitants from the scourge of small-pox.

[11] *Anaesthesia in Children.* By C. Langton Hewer, M.B., B.S.Lond., M.R.C.S.Eng., L.R.C.P.Lond. London: H. K. Lewis and Co., Ltd. 1923. (Cr. 8vo, pp. viii + 111; 31 figures. 4s. 6d. net.)

[12] *Personal Hygiene Applied.* By J. F. Williams, A.B., M.D. Philadelphia and London: W. B. Saunders Co. 1922. (Post 8vo, pp. 412. 12s. net.)

[13] *A Handbook of Aural Surgery for Students and Practitioners.* By William Wilson, M.D., B.Sc. Manchester: Sherratt and Hughes. 1922. (Cr. 8vo, pp. 336; 100 figures. 15s.)

[14] Leopold Auenbrugger's *Inventum Novum.* Faksimile nach der Ersten Ausgabe. Begleitet von der Französischen Übersetzung Corvisart's, der Englischen von Forbes, der Deutschen von Ungar. Herausgegeben und mit einer biographischen Skizze versehen von Dr. Max Neuburger. Wien und Leipzig: Josef Safar. 1922. (Med. 8vo; 3 portraits, 2 facsimile letters. In boards, £1 1s. 3d.; in half-morocco, £1 3s. 9d.)

[15] *Willing's Press Guide.* Fiftieth year. London: J. Willing, Ltd. 1923. (Demy 8vo, pp. xl + 454. 2s. 6d.)

MEDICAL AND SURGICAL APPLIANCES.

A Non-Grip Cover-slip Holder.

DR. M. W. GEFFEN has devised a non-grip cover-slip holder for microscopic work. It consists of a stiff wire framework fused into a glass-rod handle. The wire is bent into the shape of two Y's, one above the other, and united at the ends of all three arms of one Y to the corresponding arms of the other. The cover-slip is inserted between the two Y's, where it will remain in position until the instrument is held end downwards, when the cover-slip slides gently out on to the slide, as required in mounting. At the choice of the user, the glass-rod handle may be bent at a right angle, or circularly, so that the holder will not roll, and an upward bend to the wire stem leaves the slip secure and steady. The wire has been chosen to stand the flame well, and will not readily corrode with wet or acids; it is quite pliable, and can be easily bent between the fingers to hold any size of cover-slip. The instrument, he considers, presents the following advantages: that its cost is trifling; that there is no grip on any part of the slip, so that breakages are avoided; that play is allowed for expansion in the flame; that the handle is long and made of non-conducting material; that the wire is malleable; and that sterilization by flame is easy. The instrument is made by Messrs. Allen and Hanbury.

British Medical Journal.

SATURDAY, FEBRUARY 10TH, 1923.

THE TREATMENT OF GASTRIC AND DUODENAL ULCERS.

SYDNEY SMITH is credited with having made the very commonplace remark that "It is wonderful what a different view we take of the same event four-and-twenty hours after it has happened." And these words, commonplace though they are (for they have been uttered by humanity before and since Sydney Smith's time), must have sounded like the epitome of wisdom to those who heard and to those who will read Sir Berkeley Moynihan's address delivered at the Hunterian Society meeting in London on January 29th. The subject of the address was "Some problems of gastric and duodenal ulcers," and in a delightful way the salient points of a much-debated problem were isolated and considered. It is in connexion with the recommended treatment that Sydney Smith's words seem so apposite, for Sir Berkeley advises that, to obtain the best results, chronic gastric ulcer should be dealt with by the operation of partial gastrectomy. Ten years ago what would we have said to this recommendation? Yet to-day it is difficult to see what answer but that of assent can be given to Sir Berkeley's advice.

The address is full of a wide variety of clinical wisdoms. There are none of us who can afford to neglect the advice as to the value of constantly reviewing and examining case results. The successful surgeon must be an optimist, but rose-coloured spectacles should not be included in his gifts. "To see things as they are, to know the truth, and thence to find the right"—in these things the modern surgeon will do well to follow in the footsteps of the Roman sage. As the lecturer very aptly puts it, "To review our own work is a very stern and salutary discipline"; and "From a long array of cases we can glean knowledge that the single case can never disclose. The years certainly teach much that the days never knew." It is difficult to over-estimate the value of such advice, more especially in days such as these, when almost every aspect of our lives is in a constant whirl of change. When those who are responsible for much of our modern surgical and medical literature will act upon this truth less ink will be spilled and more truth will be told.

Ten years of experience in the treatment of gastric and duodenal cases forms the subject matter of the address: it embodies a total of 718 cases, 531 of these being duodenal and 164 gastric ulcers. Only chronic ulcers are included in the category, and a clear line of distinction is drawn between the chronic and the acute types of the lesion. The differentiation is important because the problem which each presents is vitally different; whether viewed from a clinical or an operative standpoint, there is a very clear and evident distinction. As Sir Berkeley points out, it is the chronic ulcer which gives us anxiety, for it is in this variety that we meet with the disastrous complications of haemorrhage, perforation, and malignant degeneration.

The problem of the etiology of chronic gastric and duodenal ulcers remains unsolved; it is assumed that an acute ulcer may form the nidus in which the chronic ulcer eventually develops, but such an answer is insufficient. In this connexion Sir Berkeley makes no mention of the influence of distinctive types of stomach cells upon the situation and occurrence of the disease, though recent histological work on the "map" method suggests the importance of this influence.

Great interest from the pathological point of view centres round the question of malignant degeneration in the ulcer. There are few who will dispute the possibility of the event, and the instances the lecturer quoted should convince the most sceptical. The recognition of the possibility is of extreme importance, and it naturally forms one of the strongest arguments for surgical ablation of the ulcer. It is refreshing to find that this shrewd observer attaches the greatest importance to the careful interrogation of subjective features. It is well that we should be reminded of this, for the technical nature of many modern methods of investigation is sometimes apt to overshadow the personal subjective factor. An impressive distinction in this connexion is drawn between the individual clinical histories of a gastric and of a duodenal ulcer.

Apart from the clinical history, radiological examination and gastric analyses afford the information upon which the diagnosis is eventually based. The visible evidence of *x*-ray examination will probably continue to be our most valuable mechanical aid. The demonstration of a "crater" is proof positive, but there are many who will not share Sir Berkeley Moynihan's confidence in the "niche" and the "notch"—the latter especially is open to suspicion, for its interrogation may be read as a localized contraction of the stomach, and it has been demonstrated as a physiological condition. Fractional gastric analysis as an aid to diagnosis has displaced other methods of gastric analysis, but the method has not yet been brought to the pitch where its evidence can be regarded as more than confirmatory. The curves obtained from a fractional gastric analysis may afford suggestive information, but, while a positive result is of value, nothing can be assumed from a negative reading. This is especially manifest in duodenal ulcer—in hyperchlorhydria the curve of "terminal ascent" may only be met with in a small proportion of the cases. The method, as yet in its beginnings, promises, however, to be of increasing value.

A considerable proportion of the address is devoted to a consideration of the curative value of medical treatment. Sir Berkeley Moynihan claims that he is a physician who has been led by force of circumstances to practise surgery, and it seems to us that he has stated the arguments of the relative values of medical and surgical treatment with remarkable fairness—in fact, he has given the former a consideration which should prove a stimulus to the physician. He has demonstrated to his own satisfaction that the chronic gastric ulcer is capable of spontaneous cure, for the healed scar has been apparent *post mortem*, but he asks the physician to supply the explanation and to initiate the successful treatment. Until this distant goal (we had almost said "Utopian," but there is surely nothing chimerical in the possibility) is reached the claim of the surgeon, as expressed by Sir Berkeley Moynihan, is that the ulcer-bearing segment of the stomach should be removed. The pleas which he brings forward are extremely cogent, and it is difficult to raise any strong objection to them; one aspect of the argument for operation, however, demands a passing notice. Sir Berkeley Moynihan claims that the extraordinarily low mortality associated with the operation is one of the strongest arguments in its favour, but it is here that the personal factor bulks so largely. The operation of gastrectomy will always be one of the most serious operations of surgery, and judgement and exquisite surgical technique are demanded if uniformly successful results are to be attained. To an onlooker it may seem that with such an extraordinarily low associated mortality

the operation must be one of simplicity and inherent safety—and so it is in the hands of an expert, but any error of technique or judgement is likely to be followed by disaster. A word of warning on this point might with advantage have been uttered.

There is one last feature connected with gastrectomy which calls for mention. Experimentally the operation has been followed by a curiously large proportion of acute jejunal ulcerations. This is especially so in the dog, where the active acidity of the gastric contents is badly tolerated by the intestinal mucosa. It would be interesting to know whether, when the operation in man is done in the presence of hyperchlorhydria, there is a greater liability to this complication. We observe that the lecturer records its occurrence in several duodenal cases, and this is the explanation which suggests itself. Experimentally a very long interval of time sometimes elapses before the jejunal ulceration manifests itself; have we any reason to fear its development as a late result in gastrectomy? Possibly it is yet too soon to say. "It is wonderful what a different view we take of the same event four-and-twenty hours after it has happened."

THE INSURANCE MEDICAL SERVICE.

DURING the past two years there have been suggestions from several quarters that an inquiry should be held, by Royal Commission or otherwise, into the working and effects of the National Insurance Acts. It has not in every case been evident that the motive prompting the suggestion has been a simple wish to discover truth: indeed, it has been accompanied sometimes by the avowed hope that discredit would be brought on the Insurance Service. Nor has the purpose of the inquiry been clearly stated. It might be threefold: into the finances of the Acts, both as to their administrative cost and as to the allocation of the funds to the different benefits provided; into the efficiency of the working of the system within the limits laid down, and the desirability and method of extending those limits; and into the effect of the system upon public health and national well-being. The time may be almost ripe for an inquiry limited to the first of these purposes. Further experience over a number of years under more normal conditions is probably required before any safe conclusions can be drawn as to the third. With regard to the second, more practical results than could be expected from any inquiry may accrue from such Conferences as that which was held last week at the invitation of the Insurance Acts Committee of the Association, and from the work of the standing committee which that Conference set up.

As will be seen from the full report in the SUPPLEMENT, the scope of the Conference was wisely limited: within this scope it should prove helpful. No representatives of the Ministry of Health were present, but all other sections of National Health Insurance workers were adequately represented. Scotland and Wales had spokesmen of marked ability. The atmosphere soon became friendly, though this did not prevent the complaints and criticisms of all sections being quite outspoken. This was as it should be. Some three or four of the speeches from approved society representatives consisted solely of general denunciation of the insurance system or of the character of the medical service given, but such vague declamation evidently did not impress the Conference, and was indeed repudiated by several other members of approved societies. Generally, specific points were dealt with in a practical manner with a view to their nature and importance being appreciated by the other sections of the Conference, and a number of useful suggestions were made for remedying defects or overcoming difficulties. These will be considered and reported upon by the new standing committee.

There are, no doubt, in the aggregate a considerable number of insured persons who have never claimed either the sickness benefit or the medical benefit to which they have become entitled, and it is possible that a large proportion of these would state as their reason that they expected something superior in the treatment they would obtain outside the service. This is a survival of an attitude not uncommon during the early stages of medical benefit, and is not based upon experience. There are also a relatively small number of insurance practitioners who have not shown that thoroughness in their work and consideration for their patients which is expected of them, and in these cases some thousands of insured persons have been affected and may have expressed, as the result of their own experience, an opinion of the service which has no justification when applied to the whole. The Insurance Acts themselves provide the machinery by which imperfections in the attention given to insured persons are constantly brought to public notice, not merely in serious cases but in those which are trivial; and although doubtless many complaints do not become vocal by the use of this machinery, on the other hand all the good steady work of the ordinary practitioner and all the friendly help given and extra services rendered go unrecorded, but are nevertheless an abundant reality in the daily lives of millions. Considerations of this kind were brought out at the Conference, and altogether it did not appear that there was any justification for general charges against the efficiency of the health insurance service within its present limits or that any improper distinction is made between the medical treatment given to insured persons and that given to others. The complaints of some insured persons both as to the administration of sickness benefit and as to the treatment received under medical benefit were seen to be curiously parallel both in their nature and in their explanation; and it is clear that both doctors and approved society officials do well to remember that generalization is dangerous, and that even grievances which appear well founded often receive a satisfactory explanation in the light of fuller knowledge.

Nevertheless, wherever defects are discovered it is to the interest of everybody that they should be removed, and where these defects are due to the real delinquency of any doctor it is certain that such delinquency will not be condoned by the profession, whose standard of judgement will probably be more severe than that of the laity. Most of the defects could be dealt with by the appropriate local action already provided for, and it seems worth while to consider whether an occasional joint meeting of the Insurance Committee and the Panel Committee of an area might not prove useful. Serious fault was found with the standard of medical certification. The importance to approved societies of trustworthy certification is clear, and their demand that they should be able to rely absolutely on the certificates of every medical man is quite incontrovertible. A distinction must be made between the mere technical breach of some certification rule and the signing of an untrue statement; but the latter can never be justified by calling it the former, and is an offence against the honour of the profession which may properly be visited with severe penalties. Insurance practitioners cannot afford to ignore this matter, and will not wish to do so.

The incompleteness of the service is recognized, but its extension—whether to include persons not now included or to embrace additional kinds of treatment and accessories to treatment—is so bound up with finance as to be an exceedingly difficult problem. The Conference made it clear that such an extension as would give greatly increased medical, surgical, dental, and nursing facilities to all insured persons was dear to the hearts of many representatives. The medical profession equally

desires these extensions. To pretend, however, as some have done, that all these things could be provided within the limits of the present Central Practitioners' Fund is quite foolish. In connexion with the reconsideration of the capitation fee at the end of this year, it may be found possible to provide for a reasonable extension of diagnostic facilities; but there is no real hope of completion of the service without serious additional national expenditure, unless a wide view is taken of that co-ordination of health services which the profession has long advocated, and which was referred to at the Conference by Mr. Canter and others. The total amount of money at present expended on National Health Insurance, on the Poor Law medical service, on the school medical service, on maternity and infant welfare centres, and on tuberculosis and venereal diseases schemes, might, if properly used, provide such a completion of the insurance health service for all classes of suitable persons as would, without departing from the present general lines and principles, go far to satisfy the aspirations of those who are working for the national health. Here is the task awaiting a Minister of Health of sufficient knowledge and vision.

THE ETIOLOGY OF DISTEMPER.

In the annual report of the Medical Research Council a paragraph is devoted, as was noted in our article on the report published on January 20th (p. 110), to the fact that the Council had made arrangements for an experimental study of distemper in dogs. The etiology of distemper is unknown, but it is clearly an acute specific infectious disease, presenting resemblances to diseases of the same class in man. A certain resemblance to measles has been noted by many medical dog owners, but it seems probable that it is more like influenza, and may even possibly be due to the same infective agent, though this is perhaps not probable. The Medical Research Council has for some years been encouraging researches into influenza, and Dr. Mervyn Gordon communicated his results to the Section of Microbiology of the Annual Meeting of the British Medical Association in Glasgow last July. His paper was published in our issue of August 19th (p. 299), and was illustrated by a special plate showing a microphotograph of a filter-passing organism in culture. Dr. Gordon saw reason for believing that influenza, and also common cold, is due to a filtrable virus. In this he confirmed results obtained in the Army Medical Service during the war, and more recently at the Rockefeller Institute. It seems probable that the infective agent of distemper in dogs is also a filtrable virus, and that, as in influenza, the severity of the resulting disease depends largely upon secondary infections, facilitated by the primary infection. There is ground for the hope that the study of distemper under strict experimental conditions may throw important light upon analogous problems of human disease; the direct results may, it is hoped, disclose the possibility of relieving or preventing the malady in dogs, and of reducing the great economic loss which it causes to this country. The Council stated that it had already received assurances that independent financial support would be forthcoming to meet the special cost of this investigation. An appeal was last week issued, signed by the Dukes of Beaufort and Portland, and Sir Theodore Cook, editor of the *Field*, for contributions to a Distemper Fund, which will be administered by a council consisting of masters of foxhounds, dog owners, and a number of biologists, and members of the medical and veterinary professions, including Sir Ray Lankester, Sir David Bruce, Sir William Leishman, Sir Walter Fletcher, Sir Humphry Rolleston, Professor C. J. Martin, Mr. Frederick Hobday, F.R.C.V.S., and Dr. H. Hammond Smith. The Council of the *Field* Distemper Fund at its first meeting assigned the direction of the research work to a Technical Scientific Committee, to be appointed by the Medical Research Council; this committee, of which Sir William Leishman will be chairman, will be responsible for the practical conduct of the investigation.

INFLUENZA AND THE LAY PRESS.

The publication of our note last week calling attention to the recent observations of Sir Spencer Lister with regard to the presence of a filter-passing organism in influenza has been followed by numerous announcements in the lay press emanating from America to the effect that the influenza germ has been isolated there, at the Rockefeller Institute for Medical Research, by Olitsky and Gates. This statement, without further details, does not advance matters. The valuable work of the Rockefeller observers mentioned was referred to in our note, and in connexion with the actual discovery of a filter-passing organism in the acute stage of influenza the still earlier work of Graeme Gibson and others must also receive due appreciation. It is well, however, to sound a note of caution. Although evidence in support of the view that influenza is due primarily to a filter-passing organism is fast accumulating, it has not yet been fully established that "influenza vera" is due to an organism of this group, and in the later stages other organisms undoubtedly play an important part. At present our knowledge of filter passers is at a very early stage. In addition to diseases such as poliomyelitis, variola, and measles, it would seem likely, from the observations of Foster in America and Embleton in this country, that one type of the common cold is due to an organism of this group. The exact relation between this organism of colds and the filter passer found in influenza has still to be determined. The work of Dr. Mervyn Gordon of St. Bartholomew's Hospital, to which reference is made above, is being actively pursued, but the technical difficulties attending such inquiries are great.

THE EXHIBITION OF JENNER RELICS.

Last week we noticed (p. 206) the Jenner Relics from the Wellcome Historical Museum, 54A, Wigmore Street, exhibited at the house of the Royal Society of Medicine on the occasion of the Jenner centenary lecture by Sir William Hale-White. The whole collection is now on view in the hall of the museum (54A, Wigmore Street), and we are glad to learn that the curator, Mr. Thompson, is on the point of issuing, for the convenience of visitors and others, a condensed catalogue of the Jenner exhibits, which are numerous and varied. The bronze statue by Monte Verde, of which there is a marble replica in Genoa, occupies a prominent place, and is one of the permanent possessions of the museum. It has been sometimes described as "Jenner vaccinating his own son," but that is wrong. In 1789, seven years before his first vaccination, Jenner inoculated his son with a mild strain of small-pox, denominated swine-pox, at that time prevalent. Nor does it represent James Phipps, his first vaccinee, who was several years older than the boy figured on Jenner's knee in the bronze group. The artist has simply depicted Jenner in the act of vaccination. Among the pictures shown is a water-colour sketch of the college in which James Phipps lived. Jenner inoculating his own son is the subject of a painting also contained in the exhibition, and there are about fifteen oil paintings of Jenner. Probably they were not all taken from life, as the differences between them cannot wholly be accounted for by the age of the subject. There is a portrait in oil of Mrs. Jenner (by Sir Peter Lely), and of their daughter. The collection includes a medallion profile of Jenner, modelled in wax from life in 1808, and a very good pencil profile evidently intended for a medal, but never produced as such, though it appears as an engraving. The striking of medals to commemorate notable events has been much commoner in other countries than in England. A case in the exhibition contains an astonishing number of vaccination medals from France, Italy, Belgium, and Germany. One English medal, however, is of particular significance. It is quite small,

a replica of one in the British Museum, which is perhaps the only example in existence of a medal struck to commemorate the recovery of Queen Elizabeth from small-pox. The head of the queen is shown in profile on the medal. The Continental medals were probably used for propaganda of vaccination. Some of the framed diplomas and addresses include notable signatures, as, for example, one from Edinburgh with the names of William Cullen, Benjamin Bell, George Bell, Andrew Duncan, and John Thomson. The diploma of the Physical Society has more than a hundred signatures. The valuable gold enamelled box in which the freedom of the City of London was presented in 1803 is one of the exhibits. The Royal College of Physicians has lent for the exhibition Jenner's favourite armchair, in which he was sitting when he died. There is also a memorial gold ring which he had made on the death of Mrs. Jenner. Among the many manuscripts exhibited is a letter which Jenner wrote immediately after the momentous vote of the House of Commons awarding him £20,000 in recognition of the value of vaccination, in addition to the previous vote of £10,000. The fact that Jenner was awarded these sums is one of the standing grievances of the anti-vaccinator of the present day. There is also the manuscript of a jocular couplet which he sent along with two ducks to a convalescent patient—

> "A regular physician she no longer lacks,
> So I send you, dear Madam, a couple of quacks."

An important letter, dated September 7th, 1800, to Dr. Davids of Rotterdam, who was largely responsible for the introduction of vaccination into Holland, contains Jenner's constantly reiterated advice about the importance of collecting lymph at an early stage in the progress of the vaccine vesicle. These are mere samples of the contents of the exhibition, which no doubt contains the best Jennerian collection ever brought together in one place, and is of the utmost interest to the whole medical profession. The collection of books was referred to in our previous notice.

VENEREAL DISEASE IN NEW ZEALAND.

WE have received a copy of the report of the Committee appointed last year by the Minister of Health in New Zealand to inquire into the prevalence of venereal disease in that country, and to advise as to the best means of combating it. The results are of special interest, since they appear at a time when in our own country a similar committee is at work. Although the conditions in New Zealand differ from those at home, the problem is essentially the same, and many of the Committee's recommendations, although possibly not all, should be applicable here. Perhaps the most important part of the report is that which deals with legislation; the Committee recommends the adoption of what is known as the system of conditional notification embodied in the Western Australia Act. Under this plan cases are notified by the doctor by number or symbol only, and it is only when a patient refuses to do what is necessary for his own safety and for the safety of others that the name is sent to the Health Department in order that appropriate steps may be taken in the interests of public health. The obligation to notify is, in this particular scheme of notification, placed on the medical practitioner, who is entitled to a fee for his services. To supplement notification, provision is made for the enforcement of treatment, the Director of General Health being empowered to demand of any person who he has reason to believe is suffering from venereal disease a certificate showing that he is receiving treatment or is cured. Should the said person not comply with these requests, the Director-General of Health may obtain a warrant from a magistrate ordering him to undergo examination. In the event of his being found to be suffering from venereal disease he may be detained in hospital or other approved place until cured, or at any rate until rendered non-infectious. In addition to this the Committee recommends "the adoption of a provision of the Queensland Act, which makes venereal disease a ground for annulling a marriage contracted whilst one party is suffering from such a disease in an infectious stage, provided that the other party was not informed of the fact prior to marriage. Also that it should be the duty of a medical practitioner attending a case of venereal disease, if he has reason to believe that the patient intends to marry, to warn him or her against doing so, and that if he or she persists it should be the duty of the doctor to notify the case by name to the Director-General of Health, whose duty it should be to inform the other party or parents or guardians of such other party. Such communications made in good faith either by the doctor or the Director-General of Health should be absolutely privileged." It will be seen, therefore, that the New Zealand Committee is prepared to go farther in legislation than most of those who have considered these questions in England would dare to recommend in the case of the mother country. For the proper working of such an Act the co-operation of medical practitioners would be absolutely essential, since the whole onus of notification rests upon their shoulders. We do not know whether the recommendation of the New Zealand Committee will receive the support of medical men in that country, and it would be of interest to have a statement of their collective opinion on the legislative measures outlined above. The medical profession is, as a whole, conservative in the views it holds on the subject of medical legislation, and rightly regards with suspicion any measures tending to disturb the confidence that exists between doctor and patient. Of one thing there can be no doubt, and that is that, should the recommendations of the Venereal Diseases Committee of New Zealand be adopted, their success will almost entirely depend on the support they receive from the medical profession. In any case, whether these legislative measures become law or not, the report of the Committee cannot fail to be of interest to all those who are dealing with similar problems at home.

THE PASTEUR CENTENARY.

THE rooms of the Royal Society at Burlington House were crowded on the afternoon of February 2nd, when Dr. Pasteur Vallery-Radot delivered a lecture on Pasteur, under the auspices of the Alliance Française, with Sir Charles Sherrington, G.B.E., M.D., President of the Royal Society, in the chair. The Alliance Française has arranged for twelve addresses (of which this was the first) to be given by Dr. Vallery-Radot at Cardiff, Manchester, Newcastle, Liverpool, Reading, Bradford, Portsmouth, Bexhill, Leicester, and Wolverhampton. Sir Charles Sherrington, in introducing the lecturer, said that he was a grandson of the great scientist, was himself a distinguished pathologist and physician, and had in preparation a collected and annotated edition of the works of his illustrious grandfather. Dr. Pasteur Vallery-Radot, who spoke in French, said that none of the homage that was being paid to Pasteur on the centenary of his birth would have been dearer to him than that of England, because it was the land of Jenner and Lister, and because here he had found some of his warmest partisans and greatest friends. Before the days of Pasteur medicine knew nothing of the cause of virulent illnesses, surgeons were afraid to operate, infection was the great fear of maternity hospitals, industries based on fermentation were powerless, and herds were dying fast. In forty years, however, the genius of Pasteur had changed all that. He transformed microbes from an instrument of death into an instrument of preservation. The work of Pasteur was by its logical linking and its incalculable consequences one of the most wonderful products of the genius of man. He had an extraordinary imagination, but he tempered it by the most strict experimentation. If he had a great mind Pasteur also had a great heart. Modesty was his great characteristic, and his work and his home life were closely linked, because Madame Pasteur was his constant help. He bound together love of his country with love of humanity. His ideal was to see humanity led to peace by the aid of science. In the evening the Alliance Française gave a dinner to Dr. Vallery-Radot

at the Vintners' Hall, Upper Thames Street, generously lent by the Company. His Excellency the French Ambassador, le Comte de Saint-Aulaire, presided over a company of one hundred, including Sir Arthur Griffith-Boscawen (Minister of Health), Sir Charles Sherrington (President of the Royal Society), Sir Humphry Rolleston (President of the Royal College of Physicians), Sir Anthony Bowlby (President of the Royal College of Surgeons), Sir William Hale-White (President of the Royal Society of Medicine), Mr. A. Chaston Chapman, F.R.S. (President of the Institute of Chemistry), Mr. H. D. Truscott (Master of the Vintners' Company), and Mr. André L. Simon (Président de la Fédération des Comités d'Alliance Française), and many representatives of the brewing and wine interests. The health of Dr. Pasteur Vallery-Radot was proposed by Mr. Cecil Lubbock (chairman of the London Brewers' Council), who, speaking in fluent French, referred to an interesting relic of Pasteur's visit to England in 1871 which had been exhibited before dinner; it was the microscope used by him when working in this country at Whitbread's brewery. Sir Anthony Bowlby paid a high tribute to Louis Pasteur's influence in originating friendly relations between French and British surgeons in the sixties, which bore fruit in the *entente médicale* during the war under Professor Tuffier; he read a letter from Lister to Pasteur acknowledging his debt to the latter's researches. As an experimenter, pathologist, and physician, and by his war service, their guest was a worthy descendant of Pasteur. In his reply Dr. Vallery-Radot gracefully referred to Edward Jenner's work, to the sanitary service of the British army in France during the war, and to Sir Charles Sherrington's world-wide physiological repute. The French Ambassador, in very happy terms, proposed the toast of "The Vintners Company"; and the Minister of Health, as the representative of the British Government, gave the chairman's health, and insisted that the progress of civilization depended on the close friendship of France and Great Britain.

INFECTIOUS DISEASE IN SCHOOLS.

WHEN the Medical Officers of Schools Association was founded in 1884 it issued a *Code* of rules for the prevention of infectious and contagious diseases in schools, drawn up by the medical officers of the principal public schools in the country. It was compiled with such great care that it speedily became authoritative, and has deservedly maintained that position ever since. The eighth edition of the *Code*,[1] just issued, bears evidence of the most careful revision, so that it may be considered to express present-day views. The text published at the beginning of the present century advised that a scarlet fever patient might return to school six weeks after the beginning of the illness, and then only if there was no desquamation or sore throat. The rule as it stands in the latest *Code* indicates the changed view which now prevails as to return to school after an attack of scarlet fever: "In not less than four weeks from the date of the appearance of the rash, provided convalescence is completed, and there is no sore throat, discharge from the ear or nose, suppurating or recently enlarged glands, or eczematous patches." As regards diphtheria, the earlier rule advised three weeks' absence from school and return only if convalescence is complete and no sore throat nor albuminuria or discharges remain. We are now able to call to our aid bacteriology in deciding upon freedom from infection in this disease, so that the present rule advises return to school after an absence of at least four weeks, provided that convalescence is completed, that there is no longer any sore throat or any abnormal discharge from the throat, nose, ears, or eyes, no cutaneous pustulation and no albuminuria, and that at least three successive bacteriological examinations of the pharyngeal and nasal mucus for the specific bacillus have given consistent negative results, each examination having been made not less than three hours after the discontinuance of local antiseptic applications. In an appendix to the *Code* practical advice is given on the methods of disinfection which should be employed after there has been a case of infectious disease in a school. There are also set out forms of certificates which may be used in connexion with the first admission of pupils and with their return to school after holidays. These ought to be of great service to head masters, for it is notoriously extremely difficult to draw up a certificate in terms which precisely express its intention.

[1] *A Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools.* Issued by the Medical Officers of Schools Association. Eighth edition. London: J. and A. Churchill. 1923. (Demy 8vo, pp. 48. 2s. 6d. net.)

PHYSICALLY DEFECTIVE CHILDREN.

THE Survey of Physically Defective Children, lately issued by the London County Council,[1] is a valuable and interesting document. It consists of two parts: the first is a criticism on Mr. R. C. Elmslie's report by the school medical officer and medical officer of health for London, Sir W. H. Hamer, and the second is Mr. Elmslie's report, which itself is a criticism of the work of the Council among physically defective children since the last reports in 1907 and 1912. The number of children examined in the schools for the physically defective was 2,294, but it is noticeable that no fewer than 597 cases were not examined on account of absence from one cause or another. The figures show a noteworthy decrease in the number of tuberculosis cases and an equally striking increase in the number of cases of infantile paralysis, which latter disease (as Mr. Elmslie points out) has become the chief cause of crippling among the children under the care of the Council, whereas in 1912 tuberculosis predominated. This change is attributable to various causes, chief among which is probably the improvement in methods of treating tubercle, although it is not improbable that there has been some increase in the prevalence of anterior poliomyelitis. The deformities due to tuberculous disease of the spine seem to be less severe than they were in 1907, and the same may be said of the hip, but the results of treatment of disease of the knee are little improved. The out-patient treatment does not and cannot yield the best results in these cases, which should all be treated as in-patients of special hospitals in the country such as those of Carshalton and Alton. Mr. Elmslie's protest against excision of the knee in children is amply justified by experience. It is to be hoped that improvements in hygiene will cause a continuous decrease in the prevalence of tubercle, but meanwhile there is a crying need for more accommodation and for up-to-date treatment. The public treatment of children who have suffered from infantile paralysis presents a very difficult problem. Despite improved surgical procedures, some of which aim at stabilization of joints, a great many of these cases require permanent instrumental support. Mr. Elmslie states that as many as 50 per cent. of the children with infantile paralysis examined by him in the East End of London were without instruments because those supplied were broken. He suggests that provision should be made for the systematic and continuous treatment of anterior poliomyelitis in its earliest stages and of its resulting deformities in a special institution, or section of an institution, in close relationship with the out-patient departments of special and general hospitals. This country has hitherto been spared any great epidemic of the disease, such as Sweden and parts of the United States experienced in recent years, but we do not know to what circumstances we owe our comparative immunity, nor can we be sure that we shall continue to enjoy it. Other kinds of paralysis do not furnish many cases. Spastic paralysis would probably figure more largely were not many cases so mentally deficient as not to be eligible for physically defective schools. Among congenital deformities were more cases of dislocation of the hip than of club-foot. Both these conditions are often cured before the patient reaches school age, and therefore they do not attend the special schools. Rickets plays a very small part in crippling London children, and would play less were parents more willing to allow operative treatment. Of the amputations, rather more than half were performed on account of accidents and rather less than half for disease.

[1] London: P. S. King and Son. 1923. (Folio, pp. 10. Price 9d.)

Some of the latter were probably done on account of severe infantile paralysis, but no details are given on this point. Mr. Elmslie is no doubt right in saying that artificial arms are useless to children of this class. In a general criticism of the medical organization of the physically defective schools he puts in a strong plea for better organization and co-operation with the various other agencies for the treatment of cripples, and urges that the services of those physicians and surgeons who are engaged in orthopaedic work should be utilized to a greater extent. He is doubtless right in thinking that the physically defective school is not a suitable place for actual treatment, which should be carried out at special clinics and in the out-patient departments of special hospitals or in the orthopaedic departments of general hospitals. The table of hospital attendances shows how few of the cases are cared for at those hospitals which have not an orthopaedic surgeon on the staff. When such institutions have established adequate departments the treatment of London's cripples will be more thorough and general. In his covering report Sir William Hamer sets forth the difficulties which have hitherto prevented the Council from filling up some of the gaps in organization to which Mr. Elmslie refers; one of the chief of these lies in the competing claims of surgical and educational requirements. While the report forms a most valuable survey of London cripples of school age, it cannot pretend to give any account of the proportion of cripples of all ages to the general population and only a partial estimate of the percentages of the various maladies and accidents which are the immediate causes of deformity. A census of cripples, not only in London but throughout the country, is still wanting, and any complete plan for meeting their needs cannot be formulated until we possess fuller knowledge of the magnitude of the problem.

THE NEW ELEMENT.

THE fundamental laws of *x*-ray emission were established by the young British physicist Henry Moseley, whose death was one of the greatest losses of the war. The laws he formulated made it possible to calculate the wave-length of the *x*-ray spectral lines for any element in the periodic table, if those of the elements in its neighbourhood are known. A very small proportion of a definite element in any chemical substance suffices to give a good *x*-ray spectrum of that element Moseley was able in this way to arrange the elements in a series, in which each element had an atomic number. The first element in the series is hydrogen, 1, and there is much evidence to establish the proposition that the total number of elements is 92, the last being uranium. When Moseley was working a good many numbers were unfilled; since then several have been found, but among those hitherto unrecognized was the element with the atomic number 72. Dauvillier reported to the Paris Académie des Sciences on May 22nd, 1922, that he had detected by means of *x*-ray spectroscopy the element 72 in a mixture of rare-earth metals; it was provisionally identified with a rare-earth element suspected by Urbain, to which he had given the name "celtium." There were, however, certain theoretical reasons for doubting this identification; it was held to be unlikely that the element 72 could be a rare earth; it was thought probable that it must be a homologue of zirconium, a metal whose affinities are with titanium, cerium, and thorium; its existence, suspected by Klaproth in 1789, was established by Berzelius. Two Danish chemists, D. Coster and G. Hevesy, working in the University Institute of Theoretical Physics in Copenhagen, announced recently in *Nature* that they had identified the presence of element 72 by spectroscopic examination of extracts of zirconium minerals. In one such mineral from Norway the new lines were so intense that Coster and Hevesy estimated that the quantity of 72 in it amounts to at least 1 per cent. As the discovery was made at Copenhagen, the Latin name of which is Hafnia, they propose to call the new element "hafnium." At the meeting of the Chemical Society on February 1st Dr. Alexander Scott, F.R.S., director of scientific researches at the British Museum, whose work on atomic and molecular weights is well known, was able to report that he had isolated the oxide of the new metal from a certain black sand obtained from New Zealand. He had received samples of the sand in 1913, when he extracted from it a cream-coloured material, consisting of magnetic oxide of iron, and titanium dioxide in the proportion of 3 to 1. In the titanium dioxide he had found small quantities of a highly refractory residue. These residues were collected, but their further examination was postponed. The compounds made by the metal in the residue with potassium and fluorine resembled those of titanium and zirconium, and Dr. Scott was stimulated by the discovery by Coster and Hevesy to determine the atomic weight; he found it to be approximately 180; the chemical characters fitted in with the suggestion, arising out of the results of the *x* ray examination, that the substance was an oxide of element 72. Dr. Scott did not apply *x*-ray spectroscopy to this oxide, preferring to offer samples to Coster and Hevesy in order that they might be the first to make the examination.

THE OPHTHALMOLOGICAL SOCIETY'S CONGRESS.

THE annual congress of the Ophthalmological Society of the United Kingdom will be held at the house of the Royal Society of Medicine on the last three days of the last week of April. On April 26th the president, Dr. A. Maitland Ramsay, will deliver an opening address at 10 a.m., and at 5 p.m. Dr. George E. De Schweinitz (President of the American Medical Association) will give the Bowman lecture. He has taken as his subject certain ocular aspects of pituitary body disorders, mainly exclusive of the usual central and peripheral hemiopic field defects. On the afternoon of the same day a discussion on the disorders of the blood and their ophthalmological manifestations will be opened by Sir Humphry Rolleston, Sir Frederick Andrewes, F.R.S., and Dr. W. C. Souter. On Friday there will be a discussion on the diagnostic significance of proptosis, to be opened by Mr. Wilfred Trotter, Mr. Herbert Fisher, and Dr. Angus MacGillivray. In the afternoon a visit will be paid to the London Hospital, and here a clinical meeting will be held. In the evening demonstrations will be given by members. Persons desirous of reading papers, showing cases, or taking part in the discussions, are requested to communicate with Mr. R. Foster Moore, 91, Harley Street, W.1, one of the honorary secretaries. "All communications must be typewritten."

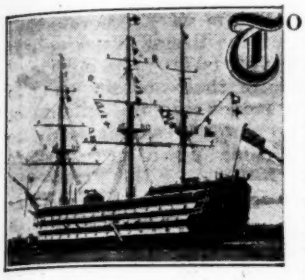
WE are informed that an appeal is about to be made to the public to provide funds for M. Spahlinger to continue his experiments on the production of an antitoxic serum for use in the treatment of tuberculosis, and of a vaccine for early or convalescing cases. Inquiries into the nature and results of M. Spahlinger's methods have been made both by the Red Cross Society and by the Ministry of Health. The reports have not been published, but we gather that the methods were looked upon as interesting, and the results, though hitherto on a very small scale, as encouraging. We are informed that M. Spahlinger is at the end of his financial resources, and that his laboratory and experimental farm at Carouge, near Geneva, may in consequence be closed. We are of opinion that M. Spahlinger should publish a clear account of his theories, with an outline of the methods he has devised for carrying them out.

WE announced some time ago that Professor E. H. Starling had been appointed by the Royal Society to the Foulerton Research Professorship. It is now announced that under the same trust Dr. H. W. C. Vines has been appointed a Foulerton Research Student; he is a Fellow of Christ's College, Cambridge, and clinical pathologist to Addenbrooke's Hospital. He is known to our readers especially for his researches on the physiology and therapeutics of calcium.

NINETY-FIRST ANNUAL MEETING
of the
British Medical Association,
PORTSMOUTH, 1923.

AN OUTLINE OF PORTSMOUTH HISTORY.

PORT, DOCK, AND HARBOUR.*



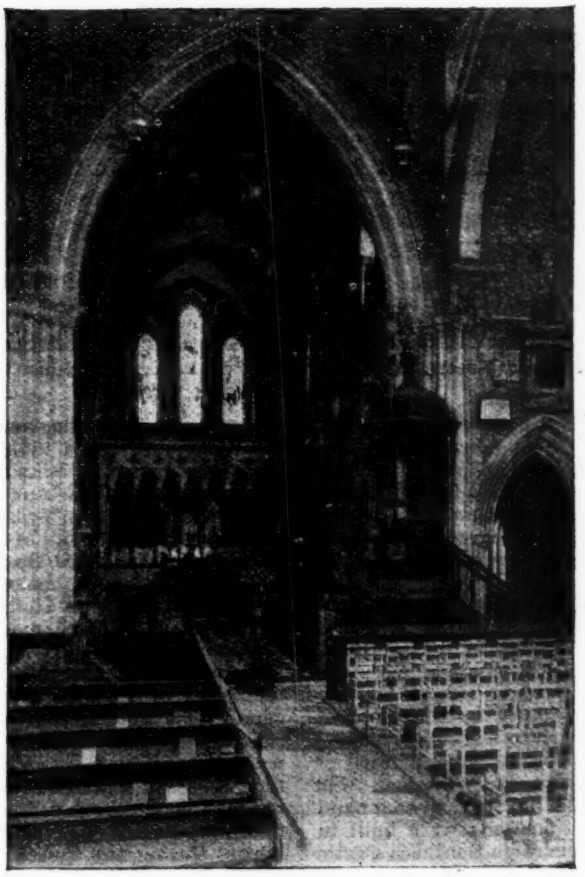
H.M.S. *Victory* at her old moorings.

TO return to the Port and Docks. When a king wished to cross to Normandy he either used one of his own ships, or employed one belonging to the fleet of the Cinque Ports. If he had a big expedition on hand he had the further right to arrest—that is, commandeer—all the shipping of the country. John, when he lost his Norman province, was the first to exercise this prerogative. Portsmouth and Southampton were no longer opposite a friendly coast, no longer were they the connecting links between two portions of the kingdom. They were now the collecting centres for armies and fleets that tried to win back Normandy. Consequently John was much in Hampshire, and the castle at Porchester, then furnished as a royal residence, was his halting place. From here he used to superintend the preparations of his futile expeditions to France, and this perhaps has given rise to his claim to the title of Founder of the Royal Navy. He was compelled to give some attention to the collecting and manning of his fleets, and for this purpose created the post now occupied by the First Lord of the Admiralty. The first "Keeper of the King's Ships" or "The Keeper of the Sea Ports" was the Archdeacon of Taunton, William de Wrotham. His duties at Portsmouth were arduous.

"He had to carry out the King's orders respecting ships and goods coming into the port; he had to see that the baliffs of the town did their work properly in supervising the arrival of wine corn pork figs almonds rice cloth sails anchors and ships' stores; he had to see that the armour, the engines for throwing stones, and the hurdles used in transporting horses were all in readiness."

More important to Portsmouth than the collecting of fleets was the formation of a kind of dock and dockyard. King John wrote a letter to the Sheriff of Southampton on May 20th, 1212. Translated by Mr. Sparks it reads:

"We order you without delay to cause our docks at Portsmouth to be enclosed with a good and strong wall . . . for the preservation of our ships and galleys. You are also to cause pent houses to be made to these walls, in which all our ships' tackle may be safely kept. Be as quick as you can that the work may be completed this summer. . . . When we know the cost you shall be paid."



INTERIOR OF ST. THOMAS'S CHURCH, LOOKING EAST.

At this time there was a mill and a pond where the Old Gun Wharf now stands. This was near the opening of a creek that ran from the harbour along what is now Park Road towards the present Town Hall Square. It was in this creek John kept his ships and built his docks. An old book of this date defines a dock as "any place or creek where we may cast in a ship out of the tide way into the ooze, and then when a ship hath made herself a place to lie in, we say the ship hath docked herself." The King's ships were run up the creek on full tide and dragged as far ashore as possible. At low tide they were surrounded with timbers and brushwood mixed with clay, and "a good strong wall" thrown across the mouth of the creek along the shore.

This began the docks, but no ships were built for years to come, although shipwrights were imported from the Cinque Ports to repair ships and galleys. So with these docks we come upon the nucleus which since has gathered round it all that goes to make Portsmouth the foremost naval station of the world. From the harbour grows the dock, from the dock grows the town.

Henry III, like his father, was a frequent visitor, and on one occasion held a great council here. The townsmen naturally took advantage of these visits, and on several occasions got their charters renewed. In 1256 one was granted which gave "our good men of Portsmouth the right to have a Merchant Guild."

For the next hundred years and more there were wars and rumours of wars, and during that time the town suffered much from attacks by pirates, Frenchmen and others. Once it was burned by the barons of the Cinque Ports and twice by the French fleets. In 1445 Margaret of Anjou landed here and was married at Titchfield by Bishop Ayscough to Henry VI. In 1450, during a mutiny amongst the sailors owing to the absence of pay, Bishop Moleyns was slain whilst trying to pacify the mob. The severest penalty of the Church was meted out to Portsmouth—the Great Excommunication. The act of expiation was not performed till fifty-eight years later, and then it was done efficiently and thoroughly.

Portsmouth as a naval base began to revive in the reign of Henry VIII. Southampton was the centre of a large Venetian trade, and so, being commercially prosperous, was not likely to compete with Portsmouth for naval honours. Henry VII began by building the square tower at the end of High Street, and the round towers on either side the mouth of the harbour were rebuilt in stone. On June 14th, 1495, a new dock was commenced, the first of its kind in Europe. Sir Reginald Bray was the architect. First the body of the dock was prepared and the sides timbered, then the more difficult task of making and fixing two gates had to be overcome. One gate was in the outer transverse wall in a gap next the long side wall—say the right; the other gate was in a

* Concluded from p. 79, January 13th, 1923. An introductory article on Portsmouth and Southsea appeared in the BRITISH MEDICAL JOURNAL of December 9th, 1922, p. 1137.

parallel wall a little way within the dock, but with the gateway between the parallel wall and the left side—that is, the gates were diagonally opposite each other. The ship was manœuvred round the gates into the basin, the gates shut, and the space between the outer and transverse walls filled in with stones and clay, and, lastly, the water was pumped from the dock. As a result of Mr. Sparks's researches we find that this dock cost £193 0s. 6¾d. to build, that the greatest number of men employed on it was 60, and that it took forty-six weeks to construct. The first ship to enter this dock was the *Sovereign*. The making of the dock necessitated the building of forges, workshops, and storehouses, and thus a regular dockyard was established. Mr. Sparks says that the earliest record of a warship being built here was the construction in this dock of a small vessel called the *Sweepstake*, and that she cost exactly £120 3s. 2d. to build!

Henry VIII was fond of the sea and took an interest in naval matters. He added eighty-five ships to the fleet, and is justly regarded as the "Founder of the Royal Navy." For that navy Portsmouth was the chief and only centre for the first half of the sixteenth century. European states were building fleets, and the discovery of the New World caused a greater interest in shipbuilding and larger and larger ships were constructed. The life of the seamen was terrible on the Royal ships—they were overcrowded, the food, poor in quality, consisting of salt meat, fish, biscuit, cheese, and beer, the beer often stored in old oil and fish barrels, and severe penalties were meted out to those who grumbled. Lord Howard reported that out of a crew of 500 on the *Elizabeth* 200 died in a month—he made fires on the ship "of sweet broom" and obtained fresh men, but they died more quickly than the others. Beer and biscuits were wanted in quantities greater than Portsmouth and Southampton could supply. To obviate some of the trouble five Royal brew-houses were set up in Portsmouth in 1513. Three of them were in "Four-House Green," and remained till the time of Charles II. The fourth house was in St. Thomas Street, and here biscuit making went on as well as brewing. Gosport, on the opposite side of the harbour mouth, no doubt helped to supply some of the biscuit; in late years, at any rate, Gosport became the centre for supplying the navy with biscuit.

PORTSMOUTH FROM GOSPORT HARD, SHOWING FLOATING BRIDGE AND PART OF HARBOUR.

Henry VIII held the first royal review of the navy at Spithead. Holinshed tells us "the King having a desire to see his navy together, rode to Portsmouth 1 Aug 1512." This review had one point at least in common with the modern ones—namely, "The King gave a banquet to his Captains before they set out." Previously to the reign of Henry VIII the King's representative had been styled "Constable of the King's Castle at Porchester and town of Portsmouth." Early in Henry VIII's reign the town was looked upon as a garrison town and a governor in command was appointed. Many additional fortifications were built in and about the town, and later in the reign Southsea Castle was built. In 1544 Sir Anthony Knyvet, who was in charge of the work, reported "that the first floor of the square tower within the great fortress is laid." Next year it had to stand a practical test of its utility—a French fleet appeared off the Wight. The English went out to meet them in St. Helen's Bay, but, as there was not sufficient room to manœuvre the sailing ships, our ships returned to habour and were protected by the fortresses along the shore. The French, unable to entice the English from the harbour, retired. During the attack, whilst the King was at Southsea Castle, one of the ships, the *Mary Rose*, 500 tons, 400 men, heeled over and sank. One result of this action was the creation of a Navy Board, which made a fixed naval policy possible. About this time a great iron chain was laid down and drawn across the mouth of the harbour between the Round Tower on this side and a similar tower on the Gosport side.

Elizabeth, the "Lady of the Seas," whose navy defeated the mighty Armada of Spain, and won dominion of the seas, did not support Portsmouth as a dockyard town. She removed most of the naval work to Deptford and other Thames yards. Portsmouth continued neglected till the seventeenth century. In 1623 the famous dry dock built in 1496 was filled in.

The revival of Portsmouth's fortunes was largely due to the Duke of Buckingham, a favourite of James I. Buckingham was appointed Lord High Admiral in 1617. He appointed a commission to overhaul the navy. Portsmouth was again made the rendezvous of the fleets. Buckingham and the young Prince Charles set off on a "philandering" expedition to Madrid in 1623, one of their objects being to arrange a marriage between the Prince and the Infanta of Spain. Their scheme failed, and ships were got ready to fetch the pair back. The King came down in August to view the fleet before it sailed. In October the Prince and Duke returned, and shortly afterwards a bust of Charles was set in a niche in the north wall of the Square Tower in St. Thomas Street, and under it the words can still be read: "After his travels through all France into Spain, and having passed very many dangers both by sea and land, he arrived here on the 5th day of October, 1623." In August, 1628, Buckingham was assassinated in his house, now No. 10 High Street, by a disappointed soldier, John Felton.

At the commencement of the civil war Portsmouth was wanted by both parties. Colonel Goring, the Governor, made the Mayor and Aldermen swear allegiance to the King, and he sent a small body of troops to hold Portsbridge, then, as now, the only way on to the island by land. Parliament sent ships to blockade the harbour and troops to Portsdown Hill. Portsbridge was soon overpowered, and further fighting took place on the north wall of the town. Some of Goring's men deserted, shots were fired into the town from Gosport, Southsea Castle was scaled and seized. Goring capitulated and was banished to Holland, and Portsmouth remained in the hands of the Parliamentarians till the end of the war.

The Commonwealth was a period of great activity at Portsmouth. Henceforth the growth of the town was to be measured by the growth of the fleet. A number of special committees were appointed to manage the navy, each with separate work to do. The value of Portsmouth as a naval base was soon recognized. Five new vessels were built. The first built was christened *Portsmouth*, and during her career put up a good record. Much repairing was done in the yard, new storehouses and shops erected, and a new dry dock built. During the Dutch wars there were many wounded men in Portsmouth. There were no hospitals, and the men, crippled by wounds and disease, were placed in stuffy public houses, and many such houses had sprung into existence. Porchester Castle received many sufferers, as it was no longer used as a residence. Elizabeth Atkin—a forerunner of Florence Nightingale—did noble work amongst the unfortunate soldiers and sailors. Amongst the wounded here was the famous Robert Blake, a native of Bridgwater, who eventually became admiral and general at sea.

The reigns of Charles II and James II were good times for Portsmouth. Samuel Pepys was during the Restoration a

frequent visitor here, and there are many entries in his diary about his visits. In 1662 on one of his visits he was made a burgess, and the honour cost him "a piece of gold to the Town Clerk, ten shillings to the Bailiffs, and spent five shillings." During the same visit "by coach to the yard and then on board the *Swallow* in the dock, where our Navy Chaplain preached a sad sermon, full of nonsense and false latin."

New docks and slip and new warehouses were built and the gunwharf commenced, and complete remodelling of the fortifications took place in the early years of Charles II; and twenty-six new vessels were built. One was christened the *Charles Royal*, and was inspected by the King, who was "infinitely pleased with the sight."

On May 14th, 1662, Catherine of Braganza landed at Portsmouth and was housed in the Domus Dei in rooms "all rarely furnished." She was met by the Duke of York, but not married to him till a week later, when the King arrived. The marriage ceremony was privately celebrated in the Queen's apartment. The marriage was duly registered at St. Thomas's Church and a copy of the entry can be seen in the porch.

James's interest in the navy brought him again to Portsmouth, when after his inspection of the yard, John Evelyn tells us, "His Majesty was entertained to a magnificent dinner." There are still standing two monuments to James II—the fine gateway at the entrance to the Officers' Recreation Ground, which originally stood in Broad Street, and the King's monogram on a bastion at the Camber Quay.

From the coming of William III (1689) down to 1815, for 126 years, there was almost continuous war with France, and during all this time Portsmouth was the chief naval centre; scarcely an admiral or general of note who did not at some time or another tread the streets of the old town. The number of ships in the navy was greatly increased, and enormous work thrown on the dockyard. In 1713 there were 240 ships of all kinds, in 1813 there were 722. Many acres of land and water were added to the dockyard. At the end of the seven years' war (1756–63) there was an Official Visitation, which recommended spending £350,000 on improvements; new docks were proposed, and it advised the use of stone rather than wood. The Admiralty Lords further "thought it highly important that all future additions, alterations, and repairs should be founded on certain fixed plans . . . proceeded on year after year in a regular manner."

George III was greatly attached to Portsmouth. In 1778 he appointed Sir Samuel Bentham—younger brother of the philosopher Jeremy Bentham—Director of the Dockyard. During Bentham's administration Marc Brunel's patent machinery for making blocks was set up in the yard. It was now possible for one man to do what ten had previously done in the same time; 100,000 blocks a year were soon produced. While Marc Brunel was living in the yard his famous son Isambard was born. Isambard's greatest feat was the building of the *Great Eastern*, the largest ship up to that time built, and for many years after. She was of 22,500 tonnage. It was due to Isambard Brunel's experiments that the screw propeller was adopted for warships.

The nineteenth century was a time of great change in the navy. It saw the passing of the sailing ship and the introduction of the steamship and the ironclad. The *Dreadnought* of 1805 was a wooden sailing ship of 2,000 tons; the *Dreadnought* of 1905 was a screw steel ship of 15,000 tons; the *Dreadnought* of to-day a steel ship of 27,500 tons, costing about £5,000,000. The area of the Dockyard is now over 300 acres, more than treble what it was 100 years ago. In 1759 there were employed in the yard 2,099 men; in 1783, 2,285 men; in 1890, 6,232 men, with a wages bill of £428,430; in 1910, 10,439 men, and wages £743,360. During the recent great war over 20,000 men were employed at one time.

The passing of time sees endless changes in the needs of the nation. The Yard, a few years ago busy beyond the limits of its capacity, is to-day nearly silent and empty. The star of the Royal Navy—or rather the Royal Dockyard—is not to-day in the ascendant.

The writer of these articles wishes to thank many friends for assistance and advice, and especially to acknowledge his indebtedness for useful information to books relating to Portsmouth, written by Mr. H. J. Sparks, Mr. W. H. Saunders, Mr. W. Gates, Mr. Montray Read, and Messrs. H. T. Lilley and A. T. Everett.

For the loan of blocks acknowledgement is due to the courtesy of Messrs. Charpentier, Ltd., Portsmouth.

Victoria.

[FROM OUR SPECIAL CORRESPONDENT.]

MELBOURNE UNIVERSITY SUPERANNUATION SCHEME.

THE University of Melbourne is about to adopt a superannuation scheme for all its full-time officers of every grade, which can only be described as generous and essentially sound. The university has made a capital grant at once, and will make an annual contribution of 2½ per cent. of the salaries paid, whilst the beneficiaries contribute annually 5 per cent. of the salary. The annual contributions of junior officers below 35 years of age are correspondingly graded. Professors will be able to retire at 60 years of age and other officers at 65 years of age; retirement is not, however, compulsory but optional. The maximum pension payable is one-sixtieth of the average salary for the numbers of years served, always provided that the pension payable shall not exceed £500 per annum. In the case of an officer leaving the service of the university before the retiring age he is entitled to withdraw from the fund all the moneys he has paid, together with 4 per cent. compound interest. Should the officer die within less than five years after retirement, the full pension will be paid to the widow for five years after the age of retirement. The scheme, which is guaranteed by the university and has been thoroughly examined by an actuary of recognized standing, appears to have given general satisfaction, and cannot fail to do something to remove some of the objections which have hitherto existed to service within a university.

SECOND-YEAR EXAMINATIONS IN ANATOMY AND PHYSIOLOGY.

Under the extended and revised medical curriculum of the university second-year examinations in anatomy and physiology have just been conducted. There can be no question that the introduction of this examination has had a beneficial effect on the work of the students. Those who have been successful in the recent examination will enter on the further work of the third year in these important basal subjects of medicine under much more favourable conditions than formerly, and it is anticipated that the work of the third year will thus attain a higher standard than has been the case under the old curriculum.

INCREASED UNIVERSITY FEES.

The Council of the University, after a long period of hesitancy and timidity, has at last ventured to raise the fees in medicine from about £23 per annum to £25. The fact, however, remains that it is still cheaper to send a boy to the university to study medicine than it is to educate him at a public school.

CHANGES IN THE MEDICAL SCHOOL.

It is expected that the new anatomy department will be ready for occupancy about July or August, 1923. The evacuation of the existing anatomy buildings will enable the medical school library to be much more efficiently housed, and will also provide for some much needed extensions for physiology and pathology. It is hoped that the new department will be officially opened during the British Medical Association Congress (Australasia) which will be held in Melbourne in November, 1923. From a large field of local and overseas candidates Mr. J. Alexander Gunn, of the University of Liverpool, has been appointed director of tutorial classes in the University of Melbourne.

THE STEWART LECTURES.

The last series of the triennial Stewart lectures of the University of Melbourne, recently delivered by Professor R. J. A. Berry, on "The Modern Psychology," have now been published by the university. Copies may be obtained from the Melbourne University Press at 2s. 6d.

Scotland.

COLOUR VISION.

AT the meeting of the Royal Medico Chirurgical Society of Glasgow held on February 2nd an address on "Some recent work on colour blindness" was given by Mr. R. A. Houston, D.Sc., lecturer on physical optics in the University of Glasgow. In the course of his address Dr. Houston said that during the past eight years statistical surveys of the colour vision of

more than 2,000 students had been made at Glasgow University. They have already been described in papers in the *Proceedings* of the Royal Societies of London and Edinburgh and in the *Philosophical Magazine*, and the present lecture dealt with some of the principal results obtained. Frequency curves were shown representing the variation of the ability to discriminate colour about a mean. These demonstrated that normal variation covers almost everything as regards women but not as regards men. The colour-blind could not be regarded as an extreme case of normal variation. Trichromasy passed into monochromasy directly and not through dichromasy as an intermediate stage, as the original form of the Young-Helmholtz theory required, and the results of the investigation rendered untenable the latter theory and also the Hering theory. The final theory, when it came, would be a photo-chemical one, and the prospects of progress were at present very promising. The lecture was illustrated by lantern slides.

CENTRAL MIDWIVES BOARD.

At a meeting of the Central Midwives Board for Scotland, held for the election of office-bearers, Dr. James Haig Ferguson was unanimously re-elected chairman; Dr. Michael Dewar was elected deputy chairman; and Sir Archibald Buchan-Hepburn, Bt., convener of the Finance Committee. The meeting appointed other committees and examiners, and approved the list of recognized institutions, with the teachers attached thereto, for the training of midwifery nurses.

At a meeting for the hearing of penal cases, with Dr. Haig Ferguson in the chair, a Glasgow midwife was cited to answer charges of serious breaches of the rules and misconduct. The Board found the charges to be proved and instructed the secretary to remove her name from the Roll of Midwives and to cancel her certificate, and in addition thereto the Board issued an order prohibiting her from attending women in childbirth in any other capacity.

England and Wales.

THE NEW HASLEMERE HOSPITAL.

IN a recent issue (January 27th, p. 169) we recorded briefly the formal opening of the new Haslemere and District Hospital by the Lord Chancellor, Viscount Cave. The need for increased hospital accommodation had been felt for some years, the old cottage hospital, opened in 1897, with its twelve beds, being quite inadequate for the largely increased population of the district. Early in 1920 it was decided to undertake a scheme of rebuilding, and an appeal was issued; but the offer of a new site led to the abandonment of this plan for enlargement in favour of the building of an entirely new hospital with ample room for future expansion. Upon the successful issue of this large undertaking congratulations are due in particular to Mr. W. E. Muir, Chairman of the Building Committee. The whole sum of £36,000 needed to complete the scheme had already been given or promised by the day of the opening ceremony.

The hospital stands on an excellent site of over four acres sloping towards the south, and its external design harmonizes with the surrounding residential property. The present accommodation provides thirty-one beds and four cots. The main entrance is on the east side, and the building has a long south frontage. Two wards project from the main block and form a sheltered court. The nurses' quarters are separated from the hospital proper by the kitchen and offices serving both departments; they have a private entrance, and communicate with the hospital by one doorway only on each floor. The main hospital corridor runs east and west, and leads to the male and female wards, each with twelve beds. There are also two single-bed wards on the ground floor, and one private ward for paying patients. The end of the corridor communicates with the two operating theatres (one large and one small), the *x*-ray room, dark room, and electrical treatment room. The first-floor corridor gives access to the labour and maternity wards and to another private ward. The building throughout has been designed in accordance with modern ideas of hospital construction: all corners are curved, and the skirtings form plain curves of the floor material. The walls of the hospital part of the building are of hard plaster. The corridor has a central gangway, four feet wide, of rubber sunk flush with the terrazzo floor. The floors of the wards, bathroom, ward kitchen, etc., are covered with a jointless material and polished. The operating theatres are paved with terrazzo, and have white enamelled walls. The building is heated throughout with low-pressure hot-water radiators. Fresh air is admitted through the radiators and foul air is carried out in ducts to turret ventilators. The building is lit by electricity, with emergency gas-lights. The sterilizing room is fitted with a high-pressure steam sterilizer heated by gas.

The architects are Messrs. Read and Macdonald, and the medical equipment has been installed under the direction of Dr. Arnold Lyndon. On the evening after the opening ceremony the workmen engaged in building the hospital were entertained to supper. Dr. Lyndon, in acknowledging the toast of prosperity to the hospital, paid a tribute to the way in which the lay committee had supported the medical committee. There was nothing asked for by the doctors which was not freely given by the committee, and the medical staff had been allowed an absolutely free hand in getting anything they considered necessary. He congratulated all concerned upon possessing a thoroughly up-to-date and well equipped hospital.

THE POSITION OF PATHOLOGIST TO THE L.C.C. MENTAL HOSPITALS.

The Mental Hospitals Committee of the London County Council has been considering the terms and conditions to be attached to the appointment of a successor to Sir Frederick Mott, pathologist to the London County Connty mental hospitals and director of the pathological laboratory, who is due to retire on March 31st. Sir Frederick Mott has received a salary of £1,025 and has been allowed travelling expenses between his residence and the pathological laboratory. The Committee considers that the salary to be attached to the position should be at the rate of £1,000 a year (on a pre-war basis), without emoluments or special privilege of any kind. The person appointed should be required to give his whole time to the duties of the office, should not be allowed to take any other business or paid appointment, and should pay to the Council any fees received by him as a witness or in any other capacity. He is to be an established officer under the Asylum Officers' Superannuation Act, and the appointment is to be determined by three months' notice on either side, provided that the first year's service shall be on probation, and the appointment be terminable at the end of, or at any time during, that period without notice if the person appointed be found to be unsuited for the service.

SMALL-POX.

While small-pox has disappeared entirely from the metropolitan area and no cases remain in the Long Reach Hospital of the Metropolitan Asylums Board, cases continue to occur here and there throughout the county. It appears that at Clowne, near Chesterfield, there were on February 2nd a total of twenty-five cases, of which five had been reported that day. Not one of the victims had been vaccinated; the first cases of this outbreak were mild, but later cases have been much more severe, without being malignant. No deaths have been reported.

Ireland.

PROFESSOR ELLIOT SMITH.

PROFESSOR ELLIOT SMITH, F.R.S., who delivered the Montgomery lecture at the Royal College of Surgeons in Ireland on January 29th, on "The movement of the eyes," was entertained to dinner the same evening by the President of the College, Sir W. I. de C. Wheeler. The following guests were present:

The Most Rev. and Right Hon. the Provost of Trinity College, the Right Hon. James MacMahon, the President, Royal College of Physicians, the President of University College, Mr. Leonard Abrahamson, Professor J. W. Bigger, Mr. Alexander Blayney, Mr. C. R. Boyce, Professor Boxwell, Mr. L. A. Byrne, Professor Calwell, Sir Arthur Chance, Mr. Arthur Chance, Professor McDowel Cosgrave, Mr. T. H. Croly, Professor A. Dixon, Mr. C. H. Drennan, Sir Conway Dwyer, Professor Evatt, Professor T. H. Gordon, Mr. L. G. Gunn, Mr. T. G. Hardman, Mr. Arnold K. Henry, Professor G. J. Johnstone, Mr. R. L. Joynt, Mr. J. L. Keegan, Sir John Lumsden, Mr. C. J. MacAuley, Mr. R. B. MacCausland, Mr. A. A. MacConnell, Mr. A. Miller, Mr. R. C. B. Maunsell, Mr. G. M. P. Murray, Sir Thomas Myles, Sir Lambert H. Ormsby, Mr. William Pearson, Mr. Seton Pringle, Professor E. Purser, Professor R. J. Rowlette, Professor Scott, Mr. E. Sheridan, Mr. T. N. Smith, Mr. Bethel Solomons, Mr. Henry Stokes, Mr. R. A. Stoney, Mr. J. B. Story, Sir Wm. Taylor, Sir Robert Woods.

WAR MEMORIAL

TO

MEMBERS OF THE BRITISH MEDICAL ASSOCIATION WHO GAVE THEIR LIVES IN THE WAR, 1914–1918.

It has already been announced that the Council of the British Medical Association has decided that the memorial to members who gave their lives in the war of 1914–1918 shall take the form of a Book of Honour to be placed in the library, a memorial tablet in the entrance hall, and a small book for issue to relatives describing the Book of Honour. Mr. F. G. Hallett, Secretary of the Conjoint Examining Board in England, has generously undertaken, as a labour of love to the profession, to illuminate the roll and superintend the engrossing of the names. He submitted to a meeting of the special committee appointed to make arrangements for the memorial a sketch of the first page or frontispiece of the roll, bearing a beautifully illuminated dedication. The scheme of the illumination was greatly admired and Mr. Hallett was asked to complete it. He was further asked to arrange that the work of engrossment should be proceeded with as soon as the list of names could be completed.

A list has been prepared which is believed to be complete, but it is of course very possible that some names may have been omitted. The first instalment appeared in our issue of January 20th (p. 125), and a further instalment is printed below. It is hoped that members will be good enough to look through the list and notify any additions or corrections that should be made, and, in particular, to verify the correctness of the christian names, as in some instances difficulty has been encountered in ascertaining them. Corrections or additions should be sent as early as possible to Mr. L. Ferris-Scott, Financial Secretary, British Medical Association, 429, Strand, London, W.C.2.

THE ROLL OF HONOUR.

(*Continued from page 196.*)

MacAllan, James
McCall, Sir John
McCall, William
McCormac, John Sides Davies
McCosh, Thomas
MacCuish, Kenneth Angus
McCulloch, Thomas Campbell
McDiarmid, John Campbell
MacFarland, George Adams
MacFarlane, Ian
McGowan, Joseph
MacGregor, Roderick Dear
McHattie, Alexander Campbell Nicholson
Mackenzie, Henry Deedes Nutt
Mackenzie, John Gladstone
McKerrow, Charles Kenneth
Mackinnon, Duncan
Mackinnon, Frank Irvine
McKnight, Dundas Simpson
MacLean, Ivan Clarkson
MacLeod, George Munro
McNicol, John Hart
McQuiban, William
Malcolm, William Aberdein
Malden, Walter
Manders, Neville
Mangin, Frederick Meredyth
Mann, John Bently
Mansfield, Cyril James
Marks, George Frederick Handel
Marshall, Charles Devereux
Marshall, George Archibald
Marshall, John
Martin, Arthur Anderson
Martin, Edwin William Sidney
Martin, James Sackville
Martin, Lionel Arthur
Martineau, Alfred John
Massy-Miles, Harry Godfrey
Mathewson, Hamilton
Mathison, Gordon Clunes McKay
Mays, Charles Cecil Wildman
Meek, Ethelbert Eldridge
Meers, John Harry
Melville, Harry George
Menzies, Arthur John Alexander
Metcalfe, Francis
Metcalfe, Francis Bramall
Metcalfe, James Beverley
Michell, Robert Williams
Miley, William Kildare
Mill, George Robertson
Millar, William Linton
Miller, Albert Guy
Miller, Archibald Ingram
Miller, Frederic Richard
Milne, Joseph Ellis
Monks, Charles
Moon, George Bassett
Moore, Henry
Moorhead, George Oliver
Morgan, James Campbell
Morris, John
Mossop, Isaac
Mowat, George
Mowat, James
Moysey, Lewis
Mulkern, Hubert Cowell
Munro, James Sutherland
Murphy, James Keogh
Murphy, Matthew
Murray, William Dunmore

Naylor, Joseph
Nicholas, James Joachim
Nicol, Charles Mill
Nix, Percival Kent
Noyes, Harry Francis Golding

O'Connor, William Moyle
O'Donnell, Frederick Albert
O'Flynn, Dominick Thomas
O'Flynn, Michael Joseph
O'Leary, John
Ommanney, Francis Montague Maxwell
O'Reilly, Patrick Stanislaus

Palmer, Ambrose Henry
Palmer, Hugh Salisbury
Parker, Jeffery Wimperis
Parkhurst, Arthur Usk
Parsons, Edward Daniell
Patel, Maneckji Burjorji
Paterson, Andrew Melville
Pattison, Peterswald
Peel, Thomas Alfred
Pereira, Frank Charles
Peters, Owen Herbert
Philips, Abraham Zadok
Phillips, Thomas McCann
Philp, Claude Hastings George
Philson, Samuel Cowell
Pickles, Philip Dobson
Pickthall, John Maynard
Pickup, William Howard
Piggott, Frederick Cecil Holman
Plaister, Geoffrey Ratcliffe
Plant, Harold Frederick Hood
Porter, Robert Nuttall
Porter, William Gutherie
Power, Pierce Michael Joseph
Prall, Cedric Barkley
Preston, Richard Amyas
Pridham, Arthur Tregelles
Priestley, Percival Thomas
Pritchard, William Bridgett
Proctor, John
Pryce, Arthur Meurig
Pye, Cecil Robert Arthur

Quirk, Frederick Whitly

Ransome, Herbert Fullarton
Rao, Mysore Seshagiri Krishmaswami
Reaney, Michael Foster
Rees, Morgan James
Reid, James More
Reporter, Maneckjee Eduljee
Richards, Samuel Jabez
Ridge, Percy Brewster
Ring, Charles Augustus Eamonson
Rix, John Cecil
Roberts, Benjamin Richard
Roberts, Walter Rowland Southall
Robertson, Angus Burns
Robertson, Herbert Rennie
Robertson, James
Robinson, Henry Betham
Robinson, Henry Ellis
Robinson, Kenneth
Robson, Charles Henry
Rock, Frank Ernest
Rodger, Douglas
Ross, Alexander Aitken
Ross, Andrew Beaconsfield
Ross, Kenneth McAlpine
Rundle, Cubitt Sindall
Russell, Robert Fergusson
Ruttledge, Victor John
Ryley, Charles

Sandwith, Fleming Mant
Sargent, Alfred George
Saundby, Robert
Savage, Thomas Copeland
Saw, Noel Humphrey Wykeham
Sayres, Alexander Ward Fortescue
Scatchard, Thomas
Scott, Samuel Geoffrey
Selby, William
Senter, John Watt
Shand, William Garrow
Sheppard, Walter Sidney
Sherman, Reginald
Sillar, Roy Allen
Simpson, James Christian
Sinclair, James Johnston
Smith, Alexander Robb
Smith, Charles Edgar Holton
Smith, Douglas Wilberforce
Smith, Francis Shingleton
Smith, George Munro
Smith, Harry Graham
Smith, William Alexander
Sneath, Wilfrid Archer
Spensley, Frank Oswald
Spittal, Robert Haig
Spoor, Herbert Mather
Stainsby, John Addison
Steel, Arthur Robert
Steel, Edwin Bedford
Steel, James
Stephen, David James Shirres
Stephen, Lionel Henry Yorke
Sterling, Robert
Stewart, Thomas Louis Grenet
Stiebel, Charles
Stokes, John Wilfred
Stonham, Charles
Storrie, Hugh Cochrane
Strain, Thomas
Stratford, Ernest
Stritch, George Seymour Russell
Struthers, John
Sturdy, Arthur Carlile
Sturrock, Peter

Sturrock, William Malcolm
Sutcliff, Archibald Alfred
Swann, Alexander James Thompson
Sykes, Harold Widdrington

Tackaberry, John Bailey
Tanner, Harold Herbert
Tate, Isobel Addy
Taylor, David Robert
Taylor, Henry Young Cameron
Taylor, James Craik
Tennent, Bernard Chalmers
Thomas, Charles Ernest
Thomson, Alfred Maurice
Thomson, Frank Wyville
Thornley, Arthur Lincoln
Tickle, Frederick Ralph
Tolhurst, St. John Alexander Molesworth
Townsend, Thomas Ainsworth
Trewman, George Turner
Turner, William
Tweedy, Reginald Carlyon

Venables, Joseph Kendrick
Verge, Arthur

Waite, Joseph Thorp
Walker, Arthur Nimmo
Wallace, Andrew
Walsh, James Joseph
Walsh, Patrick Joseph
Walsh, Stephen Barry
Ward, William Alfred
Wardleworth, Douglas
Warren, Peyton Tollemache
Warrington, William Bennett
Waters, George Alexander
Watson, George Henry
Waugh, Arthur John
Weaver, John James
Wedd, Edward Parker Wallman
Wedgwood, Percy Ashworth
Welchman, Eliot William
Westlake, Algernon
Whincup, Frank

Whitaker, Frederick
White, Hill Wilson
Whittle, Edward Denis
Whitty, Michael Joseph
Whitworth, Henry Parks
Whyte, George Thomas
Wight, Ernest Octavius
Williams, Maldwyn Leslie
Williams, Penry Garnons
Williams, Sir William Daniel Campbell
Wilson, Charles Edgar Andrew
Wilson, John
Wilson, John Sidney
Winter, Laurence Amos
Wood, Russell Eliott
Woods, James
Wooster, Reginald Joseph
Wright, Eric Alfred

Yates, Henry Bridges
Young, Robert Percy

The following names, additional to the list published in our issue of January 20th (p. 125), have been received in response to the appeal then made for additions and corrections:

Dykes, James Johnstone | Honman, Andrew Victor | Hornsey, John Frederick

Correspondence.

GALEN.

SIR,—In reference to your interesting leader of February 3rd on Galen (in which, by the way, you refer very generously to my humble pioneer efforts to put him into an English dress), may I try to throw light on one point which is still somewhat obscure? You state very properly that the great masters of literature have all had the gift of selection, but you go further and affirm that Galen had not this gift. Well, it is true that he is often diffuse and unsystematic, and includes much matter that a more artistic perception would have eliminated. Yet must we not realize that when compared with his predecessors and contemporaries his advance was precisely in the direction of this artistic method of handling material? Galen is, after all, universally acknowledged to have been an eclectic and a synthesizer, and this can only mean that he chose the best elements from all the competing schools of medical thought and blended these elements into a unity. Observe how clearly he saw this principle of artistic selection at work in the animal organism or organic part; amongst the most fundamental of the "natural faculties" he includes one of attracting the appropriate (*δύναμις ἑλκτικὴ τοῦ οἰκείου*), and another of eliminating the inappropriate, the irrelevant (*ἀποκριτικὴ τοῦ ἀλλοτρίου*). Galen affirms repeatedly that it is by exercising these faculties that the living organism showed itself an artist (his constant phrase is, *ἡ τεχνικὴ φύσις*, the artistic, creative organism), and, although he may not state it in so many words, yet surely it is clear from the whole tenor of his writings that he recognizes the need for corresponding faculties being exercised in the conscious human sphere as well; in other words, he saw that these eclectic principles were as fundamental in psychology as in physiology.

Too true it is, as you say, that Galen left much uneliminated that ought to have been eliminated, but let us at least agree that he went a long way in the right direction. He did not select enough, and you are right in demanding, as the next step, selections from Galen. A word, then, on this point. Who is to give us the material from which to select? Who, in a word, is to put the rest of Galen into English? Is it not even conceivable to the academic powers that be that this man, who held the whole medical world spellbound for a thousand years, might at least be worth reading in our day? In any case, there do not seem to be as much funds available for such purposes as would do more than recoup the translator for getting his MSS. typewritten and posted to the publisher. Or, if there are such funds, I have never heard of them.—I am, etc.,

Edinburgh, Feb. 4th. A. J. BROCK.

SIR,—Your notice in the BRITISH MEDICAL JOURNAL of February 3rd of the Galen volume in the Loeb Classical Library impels me to try to discharge a small part of the debt of pleasure which I owe to the library. I bought the two volumes of Apollodorus, translated by Sir James G. Frazer, and since then I find myself the possessor of over seventy volumes, and I have ordered many of those which are in preparation. The format of the volumes is delightful (I prefer the leather binding), and the size admits of one being easily slipped into the pocket. The scholarship and printing are of the best. I find I could easily become intemperate in expressing my admiration for the library, and I think any doctor with the slightest tincture of the classics would find a volume of Loeb an excellent corrective for the worries of practice. The message is as fresh as on the day on which it was written, and an hour or two, occasionally, in the clear air of Ancient Greece has a tonic effect which few modern books can give, unless, indeed, a man is too fagged for anything but the latest "best seller."—I am, etc.,

Falkirk, Feb. 5th. GEORGE C. STEWART.

THE TREATMENT OF NON-MALIGNANT AFFECTIONS OF THE COLON.

SIR,—In his letter on the above subject which appeared in the BRITISH MEDICAL JOURNAL of December 16th, 1922, Major R. Kelsall, I.M.S., refers to Sir Arbuthnot Lane's quotation of my experience that certain Himalayan races enjoy a remarkable freedom from asthenic dyspepsia, gastric or duodenal ulcer, appendicitis, mucous colitis, and cancer. Lest it be assumed that freedom from these diseases is common to all Eastern races, Major Kelsall has most opportunely recorded his own experience in Burma. He has found that the maladies above mentioned are not at all uncommon amongst the Burmese, Indians, and Chinese who seek relief at the various hospitals of that province. His experience is of great interest to me, for, having regard to the food habits of the people of Burma, it would have been perturbing to have heard that they exhibited an unusual freedom from gastro-intestinal disease.

The Himalayan races to whom I referred are exceptional both as to their food habits and their freedom from these diseases; so also are certain other races of Upper Egypt and Northern Nigeria. I referred to them in my Mellon lecture on "Faulty food in relation to gastro-intestinal disorder" with the object of contrasting the conditions of life of certain communities or races that are free, or comparatively free, from gastro-intestinal disease with the conditions of life of those that are not. I found an explanation of the unusual freedom of certain Himalayan races from such disease in their habit of using only the unsophisticated foods of nature. I venture to think that the faulty food habits of sufferers from gastro-intestinal disease in Burma will provide an explanation of its occurrence.

The genesis of these gastro-intestinal diseases is, to my mind, not a question of race, nor of East or West, but is preeminently one of the food habits of communities, of households, and of individuals. These diseases are common amongst the people of Southern India, a high proportion of whom live on the borderland of vitamin B insufficiency. Like the people of Burma, their staple food is rice—usually polished rice. It provides a supply of vitamin B that is insufficient for the needs of the body in general, and for the needs of the gastro-intestinal tract in particular. It is ill balanced, being too rich in carbohydrates and too poor in suitable protein.

The ill effects on the gastro-intestinal tract of food having these faults have been established by experiments on monkeys; they are such as lead to the ultimate failure of the digestive, assimilative, and motor functions of the alimentary tract, and are the foundation upon which is built much of the gastro-intestinal disease so common at the present day.—I am, etc.,

Pasteur Institute of Southern India, Coonoor, Jan. 14th. R. MCCARRISON.

SIR,—I offer these suggestions with some diffidence, but I think the difference in Colonel McCarrison's experience and that of Major Kelsall is due to the fact that the people in one case were those living under normal outdoor conditions on the hills and those of the latter were chiefly from a large town.

I have never seen a case of appendicitis or gastric ulcer in an Indian woman. Indians are no doubt comparatively free from gastric and intestinal troubles—first, because they empty their bowels completely once or twice daily. One sees them sitting amongst their crops at dawn and at sunset for this purpose. They use the crouching posture—front of thighs against the abdominal wall and knees apart, the body supported on the balls of the toes. I think it will be found that this secures a more complete evacuation of intestinal contents than the position assumed by the European, or by those adopting European clothing and habits.

Every Indian is constantly drinking water—very often very bad water; in fact, as often as he urinates if he can he drinks water. This renders the normal bowel contents more putty-like, and the motion is evacuated in one long piece or is of the consistency of porridge.

The men in India as a race have excellent teeth. The women often have very bad teeth and suffer from constipation and toxaemia when pregnant. They do not drink as much water as the men, take little exercise, and lead sedentary lives. In my experience a woman who drinks plenty of water and is not constipated never has eclampsia.

That civilized people retain their faeces too long is probable. An enema given after a normal morning evacuation reveals too often that the intestines are full of faecal matter. Is it not possible that this retention of waste material from which toxins can be absorbed may be the cause of many diseases common to the civilized—dyspepsia, gastric ulcer, appendicitis, rheumatoid arthritis, migraine? I would also suggest that dental decay is intimately connected with unhealthy conditions in the intestine.

I think *x*-ray photographs of the bowel during defaecation on the Eastern and Western plans might give useful information. It is possible that the Oriental gut has no pathological kinks because it is properly emptied daily and washed out.—I am, etc.,

Lahore, Jan. 17th. KATHLEEN VAUGHAN, M.B.Lond.

THE SURGERY OF THE PROSTATE.

SIR,—In your issue of January 27th I read the address of Sir John Thomson-Walker on "Some problems of prostatectomy" with the interest which the importance of the subject and the authority of the author demand.

In his reference to the renal complications of prostatic disease wise stress is laid on the necessity for a complete physical examination of the patient, and the fallacy of accepting laboratory figures alone as an index of renal function.

The relative merits of one-stage and two-stage prostatectomy are considered, a decided preference being shown for the two-stage method in cases complicated by chronic urinary retention or sepsis. I was under the impression that such cases were far from uncommon in every genito-urinary clinic until I read that two-stage prostatectomy is rarely performed by Sir J. Thomson-Walker, as cases complicated by chronic urinary retention or sepsis form only "a small minority of the cases of prostatic enlargement." His routine procedure is prostatectomy in one stage. And in this respect I believe his practice differs fundamentally from that of many urologists in this country, who of late years have become increasingly partial to the two-stage method. If it be agreed that the majority of these cases are potentially uraemic, the added margin of safety provided by preliminary suprapubic drainage of the bladder cannot be gainsaid.

Now, as the Leeds school has recently shown, we owe the classical operation of suprapubic prostatectomy to McGill, its perfection to Freyer; and it is of this operation, perfected by Freyer and practised by surgeons everywhere to-day, that Sir J. Thomson-Walker has some interesting criticisms to make. In his description of it he emphasizes as cardinal defects the obstacle of a rigid abdominal wall, the "primitive and unreliable method of controlling haemorrhage by irrigation with hot water," and the danger of sepsis.

His description of the operation does not correspond exactly with that of Freyer, which, for the sake of accuracy, I have reread, after twenty years; it is to be found of course in his book, *Enlargement of the Prostate*, published in 1902. There we find no reference to the embarrassment of a rigid abdominal wall, and there can be few surgeons practising the Freyer method who are conscious of such difficulty in enucleation of the prostate. Given adequate elevation of the gland per rectum, and a supple finger within the bladder, the apex of the prostate is usually reached without "the considerable amount of force required to push the abdominal wall downward towards the pelvis."

Let us pass on for a moment to the question of haemostasis in this operation. On this point Freyer is illuminating. An unrivalled experience of the operation led him to say, "there is, as a rule, very little bleeding, and this is easily controlled by irrigation with hot water." "Primitive" the method may be, in the sense of time-honoured; the fact that it is effective is of more consequence, but, we are assured, the method "would not be tolerated in any other operation of first importance." I believe the arrest of *post-partum* haemorrhage from the uterus falls within this category, and the obstetric teacher of to-day, as of yesterday, not only tolerates but actually advocates its use.

One further defect, sepsis, merits consideration. The danger from the rectal finger is emphasized by reference to "changing the enucleating hand." Is it necessary to effect this change? Such a manœuvre would certainly be more dangerous than the speculative risk of "direct infection through the rectal wall," of which there is no proof.

The solution of the author for these defects in the commonly performed prostatectomy of Freyer is its abandonment in favour of the open operation, which he describes in detail; it is by no means new, but in the practised hands of Sir John Thomson-Walker I am sure it is an ideal method. My attention was drawn to it several years ago by a paper emanating from the Mayo Clinic (E. S. Judd, 1916). Therein is figured and described what I take to be the American edition of the open operation. I tried it, and found it uncommonly difficult to perform with the aid of a forehead lamp, various retractors, and the Trendelenburg position; in all essentials a striking contrast to the directness and economy of means employed in the Freyer operation. In particular, the insertion of the continuous haemostatic suture through the torn frill of vesical mucosa and prostatic capsule struck me as a gymnastic rather than a surgical exercise. Assuredly it is not an operation for the general surgeon.

Criticism comes easily to one who writes from a brief. And a perusal of Sir John Thomson-Walker's address prompts the thought that in his brief for the open operation he has done less than justice to the merits of the older and classical operation by the method of Freyer.—I am, etc.,

Dukinfield, Cheshire, Feb. 5th. GERALD RALPHS, Assistant Surgeon, Ashton-under-Lyne Infirmary.

POLIOMYELITIS AND ENCEPHALITIS LETHARGICA.

SIR,—Having had the opportunity of meeting, under the most cordial circumstances, the then Chief Medical Officer of the Local Government Board, Sir Arthur Newsholme, during the epidemic at first called "botulism" in the spring of 1918, my interest in the whole matter of this extraordinary malady has led me to follow its subsequent course in England. Obviously not the least important aspect of this subject is that of the true nature of the peculiar disease. Now there still is great difference of opinion on this point. But on reading over the report of the Local Government Board, which included my report to our Surgeon-General, and also after reading the new monograph on encephalitis lethargica and certain recent British literature, I am rather surprised to find that there has been some misunderstanding of my attitude on the matter of diagnosis. When I finished the survey of those cases which I was permitted to see by Sir Arthur Newsholme in London and the Midland cities, I came away feeling that I had observed what was tantamount to the second or third month stage of an epidemic of poliomyelitis. This point I stated clearly in my report. In that

same communication, notwithstanding the fact that I had found many cases of muscle atrophy which had gone undetected, and which led me to feel that the disease was poliomyelitis, I also intimated that the characteristics which made it seem unlike that disease—namely, those that had to do with the higher centres, and from which it drew its name, encephalitis—were also present.

In my report I carefully avoided taking the flat position as to whether the disease was encephalitis lethargica or poliomyelitis, and intimated that there was no way—save, perhaps, further animal experimentation—of determining whether the two were different expressions of the same disease, or actually two different diseases. Dr. F. G. Crookshank has, from the very first, held the position that no categorical distinction can be made between cases of "poliomyelitis" and cases of "encephalitis lethargica," and his original articles on the subject, as well as subsequent ones, have never been given adequate consideration by the public authorities, or by the journals. Notwithstanding the fact that experimental work under the direction of Dr. Flexner at the Rockefeller Institute has failed, so far, to establish immunological relationship between the two diseases, encephalitis lethargica and poliomyelitis, one cannot help being impressed, from the clinical standpoint, with the very great similarity of the two afflictions. We are having a good deal of this disease now in sporadic form in the neighbourhood of New York City, and I have recently seen many cases which one might justifiably classify in either category.

In view, then, of the still clouded state of our understanding of this remarkable affliction, which may involve the whole or any part of the central nervous system, it is difficult to comprehend why some medical journals have so unfortunately increased the fog by emphasizing one conception of the disease to the exclusion or misrepresentation of others.—I am, etc.,

New York, Jan. 16th. GEORGE DRAPER.

THE WHITE MAN IN THE TROPICS.

SIR,—In your issue of November 4th, 1922, there appears a note on the subject of the residence of white people in the tropics and a reference to the Northern Territory of Australia. May I briefly state the facts? So far as scientific investigations have gone in Queensland, it has been impossible to find any evidence of organic changes produced in human beings by high temperatures alone. There are, however, in Queensland few tropical diseases and only a negligible coloured population. The vital statistics of Queensland are extraordinarily good, as the following statement will show.

TABLE I.—*Showing the Rate of Growth of White Population in Australian Tropics.*

Date of Census.	Population of Tropical Portion of			Total Population of Tropical Australia.
	Queensland.	Northern Territory.	Western Australia.	
April 4th, 1881 ...	56,041	3,451	651	60,153
April 6th, 1891 ...	108,986	4,898	3,711	117,595
April 1st, 1901 ...	145,932	4,096	4,664	154,742
April 3rd, 1911 ...	157,112	3,310	4,598	165,420
April 4th, 1921 ...	181,123	3,709	4,443	189,275

It will be seen that the population of Tropical Queensland increased by 24,011, or 15.28 per cent., during the decennium 1911-21. The rate of increase compares very favourably with that experienced by the Commonwealth as a whole, the results for which showed, for the same decennium, an increase of 9.11 per cent. in respect of rural areas, and 19.10 per cent. in respect of provincial urban areas.

It may be of interest to note that in 1881 the tropical population of Queensland represents 28 per cent. of the total population of that State, the corresponding percentage at succeeding censuses being as follows: 30 per cent. in 1891, 31 per cent. in 1901, 27 per cent. in 1911, and 25 per cent. in 1921.

The particulars here furnished relate to all that portion of each State north of the tropic of Capricorn.

The scanty population in tropical Western Australia and the Northern Territory is due to economic causes. Tropical Queensland is just as hot as the Northern Territory and nearly as hot as the northern part of Western Australia.

TABLE II.—*General Mortality and Infant Mortality Rates for the whole of Queensland.*

Year.	General mortality rate (No. of deaths per 1,000 of mean population).	Infant mortality rate (No. of deaths under 1 year of age per 1,000 births).	Year.	General mortality rate (No. of deaths per 1,000 of mean population).	Infant mortality rate (No. of deaths under 1 year of age per 1,000 births).
1911	11	65	1916	11	70
1912	11	72	1917	10	54
1913	10	63	1918	10	57
1914	10	64	1919	12	72
1915	11	64	1920	11	63

In respect of general mortality, it may be noted that for each of the years specified Queensland was below the Commonwealth average on six occasions, and above it on the other four. In respect of infant mortality, Queensland was below the Commonwealth on nine occasions, and above it on one only.

It will be noticed that both adults and infants have a better chance of living in Queensland than in the Commonwealth. The whole of Queensland is north of 29° lat. S., and the greater part of it is north of the tropic of Capricorn. May I ask your readers to name any country blessed with a temperate climate which shows a better vital record?

I shall be grateful if any of your readers can give me any valid reason for the belief that coloured people suffer less than white people from heat. It is, of course, true that for the most part people in the tropics are dark and people in temperate latitudes are fair, but it is not universally true—for example, the southern Chinese are yellow and not black, and in the Pacific, as is well known, the Melanesians and Polynesians differ greatly in colour. Physically it would seem that the dark skin should mean a quicker response to heat by more rapid absorption. My own experience, however, of the tropics has been that the principal difference lies in the manner in which the coloured man adapts himself to the climate by discarding his clothing.—I am, etc.,

Melbourne, Australia, Dec. 28th, 1922. JAMES W. BARRETT.

THE DANGEROUS DRUGS REGULATIONS.

SIR,—These regulations are justified only on the principle that politicians need jobs and secretariats require food at the cost of that most patient of animals—the taxpayer. The British maxim used to be that laws were not made to bind honest men but to bind the villain of society. This is all being altered, and laws are being made to bind every member of society, and are being gradually pressed home until we will shortly receive Government orders for every act in our natural lives, except the act of being born and the act of dying.

This drugs order is most absurd. It used to be a maxim of economics that no tax should be levied unless there was a reasonable prospect that it could be economically collected—that is, that the cost of collection should not exceed the revenue collected. It was also a maxim of statecraft that no law should be made which could not be enforced. The medical profession, like any other large body of men, has got a few villains. This dope law binds the honest man as well as the villain. It not only binds the former—it insults him. He objects to it, but he is far too patient. He does not object near enough. He should see to it in the future election of British Medical Councils, etc., that he elects men who will represent him, and not councils which will be the creatures of Government secretariats who only help the politicians to barter the liberties of honest men.

Will this dope order be effective? This is the grand issue; if not effective, it is the work of charlatan "statesmen"; to be effective, it has clearly to be efficient with the few villains of the profession—it cannot be effective with those who are not offenders, who are the great mass of the profession.

Assume that in defending the dope-taking degenerates against themselves Dr. A. is an offender: he is, so to speak, a degenerate, too. Has degenerate Dr. A. any scruples about the methods he uses to evade the order? He has only to write up his register—falsely, of course—and no gentleman of the secretariat can detect him. His register shows a large ophthalmic practice which justifies the use of a large amount of cocaine. His register shows a large medical practice and requires a large amount of opium, etc. The opium and cocaine may be used for dope purposes, but this will not be

shown by his register when a committee comes to deal with him. Their honest verdict will be suspicion that the drugs are used for dope purposes, but not proven, and the case falls through. The dope order will not effect its object.

Take the "dry law" in the U.S.A., which is on the same footing, except that it deals with a very large body of the community who are not degenerate. Is it effectual? It has not lessened drink for those who can pay for it.

If the ordinary law of the land cannot cope with this question, this inquisitorial law will not.—I am, etc.,

HENRY SMITH, C.I.E.,
Lieut.-Colonel I.M.S. (retired).

Sidcup, Kent, Jan. 29th.

RADIOTHERAPY FOR CANCER.

SIR,—I have only now had the opportunity of reading Mr. Fitzwilliams's paper in your issue of January 20th, as I returned but a few days ago from a second visit to Erlangen to study the recent developments there in that very deep *x*-ray therapy, principally of malignant disease, of which Mr. Fitzwilliams writes so slightingly, placing it in the same category with violet leaves, turpentine, escharotic paste, and other so-called "cures" of cancer.

Surely such an attitude is most unfair, and discouraging to research, though it is true that immediately following his diatribe against any of the attempts at *treatment*, as an alternative to *surgical removal*, of malignant growths, he does say, "Investigation and experiments should and must continue; I should be the last to decry them." He then goes on to imply that the medical profession is Athenian-like in its desire for "some new thing."

Now it is an interesting coincidence that, in your issue of January 27th, there is a report of a meeting of the Medical Society of London on the *x*-ray treatment of malignant disease, and, though different speakers held varying views as to the extent of relief that might, as yet, be expected from radiotherapy—"deep" or ordinary—of malignant disease, yet the consensus of opinion of both surgeons and radiologists seemed to be unanimous as to the benefits of radiotherapy after an operation for cancer.

Now on what do these benefits depend? Obviously because the rays have a lethal action on any malignant cells that may have escaped the surgeon, and which therefore form a focus for a so called recurrence. If, therefore, rays can destroy malignant cells when scattered near the surface, it only requires that these rays be made more and more penetrating—in fact that they approach the gamma rays of radium—and that apparatus and *x*-ray tubes be devised to produce them in sufficient quantity and for a sufficient time to allow them to act for this same lethal effect to be produced on malignant growths *en masse*.

Much has been written on this deep therapy, and in January of last year you published a paper of mine on the subject, after my first visit to Erlangen. Steady progress has been made there at the expense of much time and money, and with a most complete organization. It is unfortunate that, to obtain these penetrating rays, "larger and more expensive instruments" are necessary, but that is no reason why a carefully thought out scientific method of endeavouring to treat malignant disease is to be classed with quack nostrums. Mr. Fitzwilliams says he is the last to decry investigation. Certainly paragraphs 4 and 5 of his otherwise interesting paper are the last things to encourage research.

However, in spite of the gibes of Mr. Fitzwilliams and of any followers he may have, research and investigation will go on, at any rate on the Continent, where the mental attitude on the treatment of malignant disease is broader than it appears generally to be in this country.—I am, etc.,

J. CURTIS WEBB,
Honorary Radiologist, Gloucester Royal Infirmary.

Cheltenham, Jan. 29th.

HOSPITAL POLICY.

SIR,—Dr. Garratt's letter (February 3rd, p. 211) emphasizes the difficulty that meets any attempt to differentiate payments made by patients, and it overlooks a most important premiss in the Council's Recommendation (SUPPLEMENT, BRITISH MEDICAL JOURNAL, November 18th, 1922, p. 187) that "all payments made for hospital benefit . . . are in fact payments towards all the services of the hospital," as I feel sure Dr. Garratt will concede they must be, and there is no attempt made in hospital accounts to separate contributions into parts for treatment and otherwise.

It would be well at the outset to know exactly what is included under the term "maintenance and accommodation"; we are told that it is only the "bare necessaries of life," which, however, cost 30s. a week, but in a previous letter (December 23rd, p. 1196) it is stated that the working man has no difficulty in providing this maintenance and accommodation at home. Is it really suggested that these items in the expenditure of a working man with an income of 40s. or 50s. a week amount for any one member of the family to 30s. or even 20s. a week? Would anyone contend that the maintenance and accommodation found in a hospital, costing, say, 20s. to 30s. a week, is not incomparably better, especially from the point of view of the sick person, than that found in an ordinary working man's home, and that it is not an essential and integral part of most treatment? Could it be held that given the necessary medical and nursing staff and apparatus treatment would be as successful in a hospital patient's home, with the surroundings, air space, food, and service provided there, as it would be in the hospital?

No objection is raised to the assessment for a staff fund of money from a working man's contributory scheme because, we are told, "there will almost always be some definite financial arrangement between the contributor and the board." This arrangement of course applies to every unit contributing to the fund: is there not implied a similar understanding between the individual patient who pays and the hospital? Payment by a patient is not a charitable contribution, but for services rendered.

I would like again to ask whether it is intended in the case of a payment which exceeds the agreed amount for maintenance and accommodation that the sum assessed shall be the whole amount paid or only the excess.

No, I certainly would not attempt at the present time to approach any hospital board with our proposal, and I hope that no one will do so until we have arrived at a fairly general agreement among ourselves. It is a great thing that even the opponents of the Association's policy are now coming to admit that staffs of hospitals should receive at any rate some payment, and I am convinced that it will be possible before long to formulate a policy which shall have the practically universal acceptance of the profession; but it can only be arrived at by friendly discussion both in meetings and in the press.—I am, etc.,

CHAS. E. S. FLEMMING.

Bradford-on-Avon, Feb. 5th.

RAGGING IN BOYS' SCHOOLS.

SIR,—I think that there can be no doubt that bullying of a more or less objectionable type, now called ragging, does go on at a certain number of boys' schools, I have at the present time under my care a boy who had run away from a public school, and who when I saw him first was in a highly nervous and cowed condition. The whole matter is under investigation by the school authorities, and active steps will undoubtedly be taken to stop any bullying that may be going on. The average healthy boy can face his day's troubles all right, but it is when the boys go to their dormitories at night in charge of senior boys that serious consequences may arise to the boy's health, mentally, morally, and physically, if bullying is then continued. I seriously hope that all medical men who are consulted by parents as to a school for their boys will strongly advise them to inquire very carefully as to what supervision is exercised over the dormitories at night by the masters. At some schools the senior boys may be 19 years old, and it is a question whether paragraph 12 of Part II of the Prevention of Cruelty to Children Act, 1908, would not come into force; at any rate it is a serious menace to the national health.—I am, etc.,

HOWARD M. STRATFORD, F.R.C.S.Edin.

London, W., Feb. 3rd.

AN International Congress of Thalassotherapy will be held at Venice from April 9th to 12th. Titles of papers should be sent to the General Secretary, Professor Ceresole, Ospedale Civil, Venice, before March 15th.

THE thirty-fifth German Medical Congress will be held in Vienna from April 9th to 12th, under the presidency of Professor K. F. Wenckebach, when there will be discussions on encephalitis lethargica, introduced by von Economo of Vienna and Nonne of Hamburg; and on high arterial blood pressure, introduced by A. Durig of Vienna and Volhard of Halle. One afternoon will be devoted to demonstration of patients with endocrine disturbances.

Obituary.

JAMES RITCHIE, M.A., B.Sc., M.D., F.R.C.P.EDIN.,
Professor of Bacteriology, University of Edinburgh.

WE had the sorrow last week briefly to announce the death of Professor Ritchie of Edinburgh on January 28th, after a long and distressing illness.

James Ritchie was born in 1864, and was the only son of Rev. W. Ritchie, D.D., of Duns, an eminent minister of the United Presbyterian Church. He was educated first at the Royal High School, Edinburgh, and later, in arts and medicine, at the University. By the time he graduated in medicine at 24 years of age he was already recognized by his teachers and fellow students as one for whom the future contained rich promise. In addition to honours at graduation he had the much coveted distinction of being appointed one of the Presidents of the Royal Medical Society. He was a resident surgeon in the Royal Infirmary in charge of Professor Chiene's wards. He graduated M.B., C.M. with honours in 1888, and took the degree of B.Sc. in Public Health in 1889. In the same year he went to Oxford to act as assistant to Mr. Horatio Symonds, F.R.C.S. In this post he continued for a number of years and gained a wide clinical experience, but the Oxford laboratories attracted him and he took up the study of pathology and bacteriology. He had in this the encouragement of Sir Henry Acland.

Research led to teaching and writing, and by 1895 he was giving instruction in bacteriology; in this year also he obtained the degree of M.D.Edin. and was awarded a gold medal for a thesis entitled, "Some contributions to the theory of germicidal action." In 1897 he published, with Professor Muir, a *Manual of Bacteriology*. This was from the first, and has remained, the standard English textbook on the subject. Sir John Burdon-Sanderson succeeded Sir Henry Acland in the Regius Chair of Medicine, and one of his first acts after his appointment was to arrange for a three-term course in pathology and bacteriology for the medical curriculum at Oxford. It fell to Ritchie to undertake the greater part of the teaching. Further developments naturally followed. He was first lecturer, then reader, and finally, in 1902, was appointed professor of pathology. During this time a new department was built under his direction. His work as a professor was most successful. The undergraduates were his enthusiastic disciples; his weight in all educational questions was recognized by his colleagues in the University, and he was elected to a Fellowship in New College. His Oxford period came to a close in 1907, when he returned to Edinburgh to take the post of superintendent of the Laboratory of the Royal College of Physicians; in 1913 he was appointed to the Chair of Bacteriology in the University.

This bald recital of the posts which he held is itself ample evidence of the kind and amount of work which Ritchie found it possible to overtake. He was never afraid of responsibility, and in what he did he had most exact methods of working, and ceaseless application. In teaching he was clear and stimulating; he came into close personal touch with his students, and he drove his teaching home with many a humorous stroke; he was held in much affection by all whom he taught. The subjects of his own researches were chiefly bacteriological; they included prolonged investigations into the nature of bacterial toxins and the relation of their harmful action to their chemical constitution; the nature of the immunity reaction; and the application of antiseptics. He inspired and trained numerous younger men to follow his footsteps, and his help and criticism were sought by workers in many medical schools.

He had a ready pen. The early interest in literature and philosophy which led him to take the M.A.Edin. in 1884 remained through his life, and the power of clear scientific exposition which he acquired lent a note of distinction to all his writings. In 1913 he edited with Professor Pembrey a textbook on *General Pathology*. It was an important contribution to the science by a group of authors in this country, and the volume included illuminating chapters on "Tumours," "Atrophy and Hypertrophy," and "Death," which he himself had written.

When the Pathological Society of Great Britain and Ireland was founded in 1906 Ritchie was appointed a secretary along with Professor Boycott. The success of the society is largely due to the genial enthusiasm and efficiency with which he gave himself to the work of his office. In 1908 a working arrangement was made by which the *Journal of Pathology and Bacteriology* became the official organ of the society, and Ritchie became one of the editors with Professor Sims Woodhead. For this duty he was singularly well fitted: his wide knowledge of the subject in all its branches, his business capacity, his tact in dealing with contributors, and his keen appreciation of expository style made him an ideal editor. Needless to say, the journal prospered wonderfully under his care.

In the Medical School of Edinburgh he had a profound influence. For the Royal College of Physicians, the Royal Infirmary, and for the University he did endless service. He was one of those who originated the movement to establish in Edinburgh a memorial to Lord Lister. This was designed to provide an institution arranged and equipped for medical research in a form which would unite the forces of the various medical corporations in its comprehensive purpose. No sooner had the scheme been announced and the first steps taken to carry it into effect than the great war broke out. It was one of the greatest disappointments of Ritchie's life that he was not spared to see the development of the scheme.

He was ever on the side of progress, and into any duty which he undertook he managed to convey something of the idealism and enthusiasm by which he was inspired. In all the different offices he held he found many who relied on his judgement with implicit confidence, and not a few who claimed the privilege of friendship. His loyalty, steadfastness, and sympathy were unfailing.

His wide circle of friends, to whom his untimely illness and death brought the deepest sorrow and regret, express the most heartfelt sympathy with his widow and daughters.

J. LORRAIN SMITH.

Professor MUIR of Glasgow University writes:

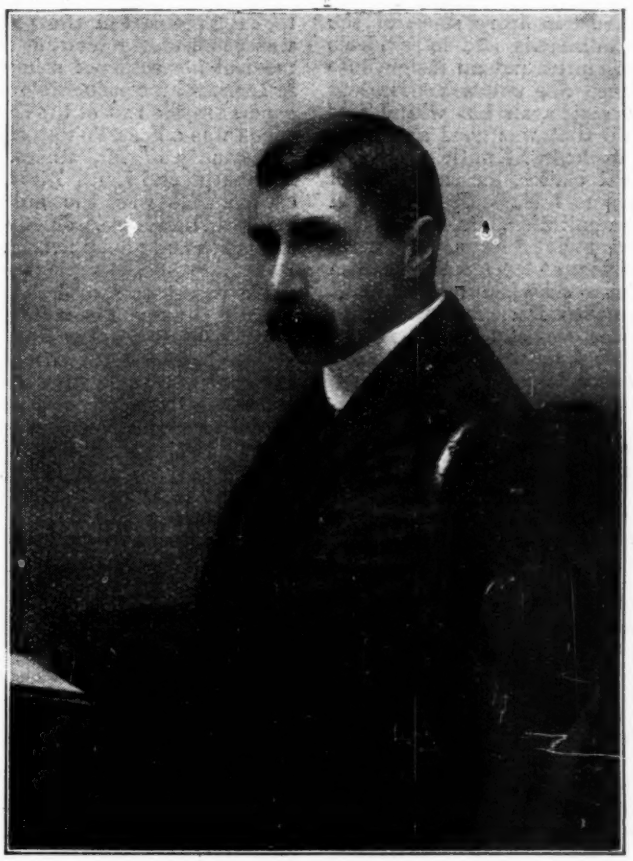
As Professor Ritchie was my intimate friend from the days when we sat together in the junior Latin class in Edinburgh University in 1880, it is fitting that I should add something to the account of his life.

James Ritchie was a son of the manse, and was brought up in an atmosphere of culture and piety; the impress of this was deep and permanent. Educated at Edinburgh High School and afterwards at Edinburgh University, where he graduated M.A. in 1884, he had the advantage of entering on the study of medicine with a well trained mind and liberal outlook. As a student of medicine, he was recognized by his fellows as a man of great ability and strong personality; he won many distinctions and graduated with honours. He had a strong bent towards the scientific side of his profession, but for a year or two after graduation it was not clear what line he would follow; he might have excelled in any department. It was after he went to Oxford as assistant to Dr. Horatio Symonds that his life's work was determined. Taking up pathological work at the Radcliffe Infirmary, he attracted the attention of Sir John Burdon-Sanderson, whose friendship and help Ritchie ever acknowledged with gratitude, and it was at his request that he started classes in pathology. When he went to Oxford there was no regular teaching of the subject. When he left it in 1907 he had been made professor, and a modern pathological institute had been built and equipped; and, though he was helped by Burdon-Sanderson in every possible way, this was essentially his own doing, and it was a wonderful achievement. He had, moreover, remarkable success in teaching. His classes attracted a constantly increasing number of the best students, and not a few owe to him their earliest interest in pathological science. It is sufficient to mention that men such as Boycott, Dean, and Turnbull were among his pupils. In Edinburgh his gifts as a teacher have been equally prominent, and few men have inspired so much devotion in their pupils.

While fully recognizing the importance of morbid anatomy and histology, Ritchie realized the enormous advances which were being made in other fields. Especially was this the case with bacteriology, and it was with a view to bringing recent discoveries in this subject into relation with pathological processes that he and I wrote the *Manual of Bacteriology* which was first published in 1897. Here I should like only to say how much, in working with him, I came to admire both his critical judgement and the painstaking labour which he devoted to his share of the work. At a time when new work was being rapidly published, it was a matter of no small difficulty to distinguish wheat from chaff, but Ritchie's instinct was rarely at fault. His broad view of pathology is further illustrated in the *Textbook of General*

Pathology, which was edited by Dr. Pembrey and himself, and published some years later. The chapters were written by pathologists, physiologists, and physicians, including the editors, and the object was to set forth the results obtained in different departments, so far as they bore on the problems of disease. In this way the work has been of great value. From an early period Ritchie saw clearly that pathology was not to be studied by any one method, but that all possible methods must be used, and that, for the best ultimate results, work in different fields must be co-ordinated. How true this view is, has been abundantly shown in recent times.

Few men nowadays are so accomplished in general medical science as Dr. Ritchie was. He had a wonderfully intimate knowledge of bacteriology in relation both to pathology and public health. He was an excellent pathologist, he was well versed in kindred sciences, and he had considerable experience as a physician. Both as an investigator and as a director of research he held high rank, his own investigations dealing chiefly with wide problems in immunity and antiseptic action. In the systematic exposition of a subject and in critical analysis he had few equals, and here I may refer, in addition to the textbooks mentioned, to his review of the subject of immunity published in the *Journal of Hygiene* in 1902, and to his masterly article on the General Pathology of Infection in *Allbutt and Rolleston's System of Medicine* (second edition).



PROFESSOR JAMES RITCHIE.

Photograph by] [*W. Crooke, Edinburgh.*

The unstinted way in which Ritchie devoted his powers to any work which he undertook is strikingly illustrated by his services to the Pathological Society of Great Britain and Ireland. He was one of its secretaries from the foundation, and when the *Journal of Pathology* was adopted as its official organ he became assistant editor, and, on the death of Sir German Sims Woodhead, editor of the journal. The work which he did, both on the scientific and business sides, was invaluable; for along with his critical ability, always used with courtesy and tact, he had a special knowledge of the technical side of publishing, which was of great advantage. I am sure that all the members of this society will acknowledge that to him the success and efficiency of both society and journal were largely due, and will always gratefully remember the debt they owe to him.

In later years his gifts for administration brought him new duties in other spheres. He was never a lover of office for its own sake, but he was always responsive to the appeal of any good cause. As a member for several years of the Board of the Royal Infirmary in Edinburgh, and more recently of the University Court, he took a leading part in furthering the work of both institutions, and gained the unreserved trust of his colleagues. Always zealous for progress, he was helped to it by his fair-minded, kindly, and unselfish dealing.

Professor Ritchie had a wide circle of friends—he loved their companionship. He was not cloistered in his own profession, and many grieve at his death whose work lay wide apart from his own. He was intensely human in his outlook, humorous and wise, interestingly informed, and sympathetic; witty also—his skill in word portraiture and epigrammatic terseness in description will not soon be forgotten. He rejoiced in the advancement of his fellows, and nothing that he did ever savoured of the petty or the unworthy. The foundation of all the affection felt for him was well and truly laid. He has left a noble record of good and useful work, but those who knew him best will dwell most on what he was. His family life was a peculiarly happy one, and was for him a priceless possession. He bore the trials of his last illness with marvellous courage and patience, and he died, as he had lived, in calmness and confidence.

Professor ARTHUR THOMSON of Oxford has been good enough to send the following appreciation of Ritchie's work for the University of Oxford:

To those of us at Oxford who were associated with him in the days gone by, the death of Professor James Ritchie of Edinburgh recalls how much the medical school was indebted to his initiative and enterprise whilst he was our colleague. As I write this away from sources of accurate information, I must content myself with a general outline of his career whilst he was with us. Coming to Oxford about 1890, as a young man with surgical tastes, he became associated with Mr. Horatio Symonds, the well known surgeon, whose death we have had so recently to deplore. In this capacity he was brought in contact with the staff of the Radcliffe Infirmary and with those concerned in medical education in the University. At this time the medical school was in process of development under the inspiring influence of Professor Burdon-Sanderson, who was ever alert to recognize ability and utilize it to the best advantage. Under Burdon-Sanderson's guidance Ritchie was early attracted to the study of pathology, and soon made rapid strides in his knowledge of that subject.

When Sir Henry Acland resigned the Regius professorship of medicine, after much pressure, and despite the adverse comments of some, Burdon-Sanderson accepted the responsibility of filling that chair. This he did with the declared intention of devoting himself to the furtherance of the study of pathology, for which at that time the University made no provision. He was most ably supported by the energy and ability of young Ritchie, who threw himself heart and soul into the project. For long they struggled against adverse conditions, with but slight encouragement from the University, and but little sympathy from the Oxford medical graduates in London, whose contention was that Oxford was ill adapted for the pursuit of that study. Happily, when the future seemed to hold but little prospect of success, Mr. Ewan Fraser, then a pupil of Ritchie, offered us the munificent sum of £5,000 towards the erection of a department of pathology. The University, in duty bound, and in response to the crying needs of a growing school, provided the additional funds, and thus were laid the foundations of a subject which has since been taught at Oxford with ever-increasing advantage to its students and with recognized distinction by its teachers. It is not belittling the fame of Sir J. Burdon-Sanderson to say that Ritchie was the moving spirit in planning the new buildings and directing the teaching of the department of which he was subsequently placed in charge as titular professor of pathology.

Under Professor Ritchie's influence a school of pathology was soon founded, many of whose pupils have since risen to distinction, but unfortunately there was no permanent endowment associated with the chair, and the future was to some extent precarious. Under these circumstances it is not to be wondered at that, attracted by the inducements held out by the late Sir Batty Tuke, Ritchie, about 1907, accepted the directorship of the Research Laboratories of the Royal College of Physicians of Edinburgh. To us it was a sad

wrench; to him, I know, the decision was only taken in spite of the dictates of his heart, but the claims of his fatherland and his Alma Mater proved paramount, and he answered to what he regarded as the call of duty. What was our loss has proved Edinburgh's gain. When, alas, too late to retain his services, a couple of years after he left us a chair of pathology was instituted and endowed by the University, and the future of the subject was thus assured.

Meanwhile during his sojourn in Oxford Ritchie's abilities had been quickly recognized in other directions; he was given a Fellowship at New College, and in due course became a physician to the Radcliffe Infirmary. There his activities did much to place on a permanent footing the *entente* established between that institution and the University, particularly in respect of the facilities necessary for the teaching of pathology. It is in grateful recognition of these services that those of us interested in the welfare of the Oxford Medical School desire to place them on record. Of his personal qualities, as one of his oldest friends I write feelingly. He was a "white man" in every sense of the term. With high intellectual attainments and lofty ideals he combined a soundness of judgement and an insight into business which in my experience are unusual. He had within him the makings of a statesman but withal was simple, modest, and a lover of all that was good and pure. In the interests of the school he worked with untiring energy, often sacrificing his own personal claims, for the common good. Of his virtues as a colleague I can only write with feelings of profound respect and admiration. In lighter vein his pawky Scottish humour just bubbled over. When on occasions in debate he took the floor at the meetings of the Oxford Medical Club, his incisive criticism and brilliant repartee, often delivered in the broadest Doric, never failed to arouse the attention or stir the feelings of those who were privileged to hear him. Of Ritchie I never heard a man say an ill word—a tribute which few can claim.

By his death—alas! all too soon—Oxford shares with Edinburgh the sorrow entailed by the loss of a man so gifted and lovable. With us his memory will ever be associated with the early development of the medical school. To Ritchie we owe more than most men know. May it not be forgotten.

To his bereaved widow and sorrowing family we tender respectfully our sincere sympathy and regret for the loss of the man who helped us much.

Dr. F. E. REYNOLDS, Senior Lecturer in Pathology, University of Edinburgh, writes:

Although the name of Professor James Ritchie will go down in the history of the University of Edinburgh as a great scientist, worker, and teacher, it is even more for his personality that those of us who have been his undergraduates or workers in his laboratory will treasure his memory. The keen interest he had in each of his students made us feel that in him we had a personal friend who shared with us our joys and successes, our difficulties and sorrows. Nothing was too much trouble for him to do on our behalf. Although so fully occupied by his professorial and other duties, he was never too busy to give us freely of his advice and help both as a man and as a scientist. As with all truly great men, patience, simplicity, and humility were outstanding features of his character.

Professor Ritchie's death has caused a gap in the lives of his students and of his assistants that can be filled only by the memory of his many acts of personal kindness to us all. When our time comes to pass, may we be able to say with as much justification as he could have said: "I have upheld the honour and dignity of my profession; by my work and industry I have added to the great reputation of my university; I have helped my fellow men to the utmost of my ability."

Dr. ERNEST W. M. HIGGS of Oxford died from bronchopneumonia on January 9th, aged 52. He was a native of Bodmin and received his medical education at Charing Cross Hospital Medical School and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1891 and the L.M.Dub. in 1892. After serving as demonstrator in minor surgery and house-surgeon at Charing Cross Hospital, he became surgeon to the Royal Niger Company, West Africa, and commenced practice in Oxford in 1900. Early last year, in consequence of a severe accident sustained six years before, he underwent high amputation through the thigh. An artificial leg was fitted, in the use of which Dr. Higgs became adept; he was able to drive his car as before and continued much of his professional and public work. He was a member from its inception in 1912 of the Oxford National Health Insurance Committee, and had served on the medical service, allocation, and finance subcommittees. During the war Dr. Higgs was one of the examining members of the local medical board. He was a member of the Executive Committee, and was this year chairman, of the Oxford Division of the British Medical Association. He is survived by his widow and two sons. The funeral took place at Rose Hill on January 11th.

We regret to record the death, at Lisbon, of Dr. THOMAS WOOD of Leith, who had been ill for several months and was on his way to the Canary Islands. Dr. Wood graduated M.B., C.M. in 1883, and M.D. (with commendation) in 1904, at Edinburgh University. He was a well known general practitioner in Leith, was a Fellow of the Royal Society of Edinburgh and of the Obstetrical Society of Edinburgh, and held the appointment of factory surgeon. His principal public work was performed in connexion with Leith School Board, of which he was a member from 1894 to 1909. He took a large part in the provision of school extensions, and was particularly identified with the introduction of the medical inspection of school children, which was carried out in Leith for a considerable period before legislation made it general in the rest of the country. In his younger days Dr. Wood was a keen Volunteer, he was a justice of the peace for the county of Midlothian, and he was a member of the Edinburgh and Leith Division of the British Medical Association. He was the author of several contributions to medical literature, chiefly on subjects connected with obstetrics and public health.

We regret to record the death, following an accident, of ALFRED HENRY FISON, D.Sc., who had been Lecturer in Physics at Guy's Hospital since 1906, and at the London Hospital since 1910. He was born in 1857 and received his early scientific education at the Royal School of Mines. For more than twenty years he travelled about the country giving university extension lectures, and he had been secretary of the Gilchrist Educational Trust since 1912. Dr. Fison's great ability as a teacher was recognized by generations of students, many of whom caught something of his enthusiasm for physical science.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE Representatives of the University at the Conference on the Courses of Instruction Provided by Medical Schools, held at the University of London on February 3rd, were the Regius Professor of Medicine (Sir Archibald Garrod) and the Dean of the Faculty of Medicine (Dr. E. W. Ainley Walker).

The Services.

R.A.M.C. COMMISSIONS.

THE following were the successful candidates for commissions in the Royal Army Medical Corps at the competition held in London last month: H. A. Gilkes, M.B., Ch.B.Oxf., R. Murphy, B.A., M.B., B.Ch., B.A.O.Dub., F. C. H. Sergeant, M.B., Ch.B.Liverp., W. L. S. Cox, M.R.C.S.Eng., L.R.C.P.Lond.

DEATHS IN THE SERVICES.

Lieut.-Colonel Allen Andrew Lyle, R.A.M.C. (retired), died at Douglas, Isle of Man, on January 9th, aged 67. He was born at Belfast and educated in Dublin, taking the L.R.C.S.I. and L.K.Q.C.P. in 1876. He entered the army as surgeon in 1878, became lieutenant-colonel after twenty years' service, and retired on August 9th, 1898. After retirement he was employed for some time at Aldershot, and also served in the war of 1914–18, from June 7th, 1915.

Surgeon-Major William Napier Keefer, Bengal Medical Service, (retired), died at Toronto on December 27th, 1922, aged 78. He was born at Thorold, Ontario, and graduated B.A.Toronto in 1864, and M.D. and C.M.McGill in 1869. He took the L.R.C.S.Edin. and the L.S.A. in the same year, and entered the I.M.S. as assistant surgeon in 1869. He became surgeon-major after twelve years' service, and retired in 1889. Most of his service was passed in military employment; he was for many years medical officer of the 13th (Duke of Connaught's) Bengal Lancers (Watson's Horse). During the last five years of his service he held the post of chief medical officer of the Andaman Islands. He served on the North-East Frontier of India in the Lushai expedition of 1871–72 (medal); on the North-West Frontier in the Jowaki campaign of 1877–78 (clasp); in the Afghan war of 1878–80, capture of Ali Musjid, Laghman Valley and Zaimukht expeditions, capture of Zawa (mentioned in dispatches, medal with clasp); and in Egypt, 1882, action at Kassassin, battle of Tel-el-Kebir (medal with clasp, Khedive's bronze star, and Order of the Osmanieh (4th class)). During the recent war he gave a very large donation to the Red Cross.

Medical News.

THE Postmaster-General asks us again to call the attention of medical practitioners to the regulations under which "deleterious liquids or substances," including pathological specimens, may be sent through the post, as packets of the kind found not properly packed are regarded as prohibited articles and are destroyed. Any such liquid or substance must be sent by letter post, not parcel post; it must be enclosed in a receptacle, hermetically sealed or otherwise securely closed, which receptacle must itself be placed in a strong wooden, leather, or metal case in such a way that it cannot shift, and with a sufficient quantity of some absorbent material (such as sawdust or cotton-wool) so packed about it to prevent leakage from the package in the event of damage to the receptacle. The package so made up must be conspicuously marked "Fragile, with care," and bear the words "Pathological specimen." A person who sends such liquid or substance contrary to these regulations is liable to prosecution.

A SPECIAL post-graduate course of systematic lectures and clinical demonstrations will be given at the National Hospital for Diseases of the Heart, Westmoreland Street, W.1, on Thursdays, at 5.30 p.m., commencing on February 15th and terminating on March 29th. Further particulars can be obtained on application to the dean at the hospital.

BEFORE the National Assembly of the Church of England brought its session to an end last week it adopted a proposal by the Bishop of London to appoint an advisory committee to consider social and industrial matters in which moral issues are involved. It would, in particular, watch bills introduced into Parliament and call conferences of persons interested in social and industrial problems. A proposal to employ a paid secretary was withdrawn.

AT the invitation of the Mayor and municipality, the Royal Institute of Public Health will hold its next annual congress in Scarborough from May 16th to 21st, 1923. The Congress will be conducted in the following five sections: (1) State Medicine and Municipal Hygiene; President, Sir William Middlebrook, late Lord Mayor of Leeds. (2) Naval, Military, Air, and Tropical Diseases; President, Lieut.-General Sir Arthur Sloggett, K.C.B., late D.G.M.S., British Armies in France. (3) Bacteriology and Bio-Chemistry; President, Dr. F. W. Twort, Superintendent, Brown Institute, University of London. (4) Women and the Public Health; President, Lady Dorothy Wood, President of the Yorkshire Federation for Maternity and Child Welfare. (5) Industrial Hygiene; President, Sir Lynden Macassey, K.B.E., Governor of the London School of Economics, University of London.

CIRCULARS of inquiry as to the accuracy of their addresses were sent on February 2nd to all persons whose names appeared in the printed *Dentists Register* for 1922—that is to say, to all persons registered before the passing of the Dentists Act, 1921. Any person coming within the above category who does not receive an inquiry in course of post should communicate with the Registrar of the Dental Board, 44, Hallam Street, W.1, without delay, in order that there may be no risk of the erasure of his name under Section 12 (3) of the Dentists Act, 1878.

A DISCUSSION on the detection and estimation of small quantities of arsenic was held recently at Nottingham, at a joint meeting of the Society of Public Analysts and the Nottingham Section of the Society of Chemical Industry. Mr. A. Chaston Chapman, F.R.S., described his experience during the last twenty-five years with the zinc-acid process, and gave an outline of his procedure, more particularly in the use of cadmium to render the zinc sensitive. Mr. Wilkie, secretary of the Nottingham Section, demonstrated the use of his electrolytic method of estimating arsenic, in which the reversibility of the reaction was prevented. Dr. Monier-Williams showed an electrolytic Marsh apparatus modified from that in use in the Government Laboratory. Major Trotman expressed the opinion that the preliminary treatment of the material was the crucial point of the estimation. He suggested that a conference should be called to discuss the standardization of methods of estimating arsenic.

DR. A. V. HILL, professor of physiology in the University of Manchester, will deliver the Friday evening discourse at the Royal Institution, 21, Albemarle Street, W.1, on February 16th, at 9 p.m., the subject being muscular exercise.

THE Ministry of Health has issued a revised list of the treatment centres for venereal diseases approved by the Ministry under Article III of the Public Health (Venereal Diseases) Regulations, 1916. Information is also given as to the days and hours of the out-patient clinics, and for the irrigation of cases of gonorrhœa during the intervals between the clinics.

WE announced a year ago that the Conjoint Board of Scientific Studies had arranged to issue an alphabetical list of titles of periodical publications containing the results of original research, together with indications of the libraries in London, Oxford, Cambridge, Aberystwyth, Edinburgh, and Dublin, in which they are filed. The Carnegie Trust has given £1,000 to defray the cost of including a larger number of libraries. It is stated that over 300 copies have already been subscribed for at two guineas each.

THE Departmental Committee on the Taxation and Regulation of Vehicles appointed by the Ministry of Transport held its first meeting on January 26th. It heard evidence from Sir Arthur Stanley, chairman of the Royal Automobile Club, with regard to the proposal that motor taxation should take the form of a flat-rate duty on motor spirit. The so-called private motor had, he said, become very largely a utility or business vehicle. Evidence was given at this and subsequent sittings on behalf of motor manufacturers and traders to the effect that the present system of taxation had a prejudicial effect on the design of British motors and hampered trade.

THE annual dinner of the Hunterian Society of London will be held on Tuesday next. Particulars can be obtained from Mr. A. E. Mortimer Woolf, F.R.C.S., 81, Wimpole Street, W.1.

THE Chairman of the Executive Committee of the British Red Cross Society, 19, Berkeley Street, London, W.1, in making an appeal for subscriptions to enable the Society to cope with the position in the Near East, states that the Greek Government cannot meet the pressing demands upon it. The refugees in Greece include thousands of British subjects from Asia Minor and Thrace. From Lady Rumbold's Hospital, already established at Dedeagatch in Western Thrace, with 300 beds, assistance could be sent to the villages in the surrounding country, but at least three clearing hospitals of 100 beds each are, it is said, urgently needed in Western Thrace.

WE are informed that we were under a misapprehension in stating that the system by which medical publishers send out books on approval is new to this country; in particular we learn that Messrs. H. K. Lewis and Co., of Gower Street, carry on the system not only in respect of their own publications, but of the works of any publisher.

IN view of the withdrawal of overseas contributions the Imperial Institute is in financial difficulties, and the Secretary of State for the Colonies has appointed a committee to consider what functions carried out by the Institute are essential, and whether these should be continued by it or attached elsewhere.

A PAPER was read recently before the Royal Society of Arts by Mr. T. H. Fairbrother, a chemist on the staff of the British Dyestuffs Corporation, and Dr. Arnold Renshaw of Manchester, on the relation between chemical constitution and antiseptic action in the coal-tar dyes. As a general rule, dyes which show any marked antiseptic action contain one or more amido groups in the molecule. The physical state of a substance has probably much to do with its power to destroy organisms or interfere with their growth. If a dyestuff has a colloidal nature in solution it is not likely to be an active antiseptic. While antiseptic action cannot be predicted from chemical constitution alone, absence of antiseptic action can be so predicted. A series of aniline dyestuffs have been investigated for their action on certain common bacteria and protozoa (the latter generally paramoecia, isolated from sewage). The dyes which had the greatest action on paramoecia were nile blue, meldola blue, auramine O, ethyl violet, magenta acetate, malachite green oxalate, and certain new violet dyes. Paramoecia forms were affected at once by these dyes at a dilution of 1 : 20,000. With meldola blue D—a new preparation of meldola blue with zinc chloride—immediate death occurred with a dilution of 1 : 80,000, and within two and a half hours with a dilution of 1 : 160,000. Neo-salvarsan solutions, in dilutions of 1 : 200, fail to kill paramoecia in two hours. Of the dyes mentioned auramine O, ethyl violet, malachite green oxalate, and magenta acetate have great bactericidal properties also, but oxazine dyes act more intensely upon protozoa than upon bacteria. Two of the most active dyes—auramine and nile blue—were tried in varying dilutions upon trypanosomes freshly obtained by bleeding an infected mouse, and within fifteen minutes a dilution of 1 : 20,000 of either of these dyes destroyed all the trypanosomes in the film, whereas control films under the same conditions showed great activity at the end of thirty minutes. Experiments on animals are held to make it probable that auramine might be injected intravenously in trypanosomiasis without any untoward result. Answering a point raised in a brief discussion, Mr. Fairbrother said that, though certain dyes stained the protoplasm of the organism, the staining did not appear to have any great antiseptic significance.

IN response to an invitation from the President of the Rockefeller Foundation, a commission has been appointed by the Japanese Minister of Education to visit the United States next March as guests of the Foundation for the purpose of studying American and Canadian medical institutions and methods. The six members of the commission are Dr. Kinnosuke Miura, professor of medicine, Tokyo Imperial University; Dr. Sahachiro Hata, professor of medicine, Keio University, and director of the Kitasato Institute; Dr. Keinosuke Miyairi, dean of the medical college, Imperial University of Kyushu; Dr. Mataro Nagayo, professor of pathology and pathological anatomy, Tokyo Imperial University; Dr. Akira Fujinami, professor of pathology and pathological anatomy, Kyoto Imperial University; and Baron Yoshihiro Takagi, chief surgeon and professor of surgery in the Tokyo Charity Hospital and Medical College. The leading hospital and research centres of North America will be visited, and attention will be paid by the commission to public health and hospital organization and administration, as well as to medical research.

A PORTRAIT of Dr. C. J. Sells, who for forty-six years and a half served as medical officer of the Guildford Poor Law Institution, has been hung in the board room of the Guildford Guardians in appreciation of his valuable services. At the unveiling ceremony on January 27th a replica of the portrait was presented to Mrs. Sells.

THE price of Sir Archdall Reid's book, *Prevention of Venereal Disease* (Heinemann), has been reduced to 7s. 6d. net.

IT is now possible to travel in comfort from the Lybian border of Tunis to the Atlantic shores of Morocco. During the war the French Government constructed a network of splendid roads, particularly in Morocco, and since the war the Compagnie Générale Transatlantique has put motor cars upon them and established twenty-two hotels. Full particulars of these tours, and also with regard to the French Riviera, can be obtained from the Office Français du Tourisme, 56, Haymarket, London, S.W.1.

DR. ROUX, director of the Pasteur Institute of Paris, has received the distinction of the Grand Cross of the Royal Order of the Danebrog.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

INCOME TAX.

"M. D." gives particulars of the statement he sent in for assessment purposes.

*** We think that the root of the difficulty he finds in coming to some arrangement with the local inspector lies in the fact that the major items in his statement of earnings appear to have been estimated instead of having been taken from actual records of receipts. Out of the total gross earnings of £489, £200 is included for dispensary and £150 for private practice, and the claim for expenses of motor, chauffeur, and maid is put at an all-over figure of £350. "M. D." has evidently been placed in circumstances in which the keeping of proper records is almost impossible, but if he cannot produce more detailed evidence of his earnings than the above figures he is at a serious disadvantage in contesting the assessment. We advise "M. D." to see the inspector—or depute a friend or agent to do so—give him what facts he can, and endeavour to come to some amicable arrangement of the whole matter. We have no doubt that if the facts as to "M. D.'s" illness are explained by letter the inspector will arrange for the matter to remain in abeyance for the present.

LETTERS, NOTES, ETC.

BLOOD UREA.

MR. A. BASIL ROOKE, F.R.C.S. (Bournemouth), writes: The following statement appears in Sir John Thomson-Walker's address on "Some problems of prostatectomy" published in your issue of January 27th: "The figures given as normal for the blood urea—namely, *20* to *25* per cent.—are too low in dealing with old men, and a blood urea of *40* to *50* per cent. may be present without indicating serious impairment of the renal function. I recently operated on a patient whose blood urea was *58* per cent., and who had been refused a single-stage prostatectomy on this account. The patient was in other respects a healthy man, and I disregarded the high blood urea. Recovery from the operation was uneventful." W. F. Braasch states: "It is generally recognized that an estimation of 40 mg. of urea nitrogen for each 100 c.cm. of blood would indicate a guarded prognosis, and when it reaches more than 100 mg. the prognosis is very grave" (*Diagnosis of Surgical Lesions of the Kidney*, Mayo Clinic, 1919). The practice of recording the blood urea sometimes as a percentage and at others as milligrams in 100 c.cm. facilitates such clerical errors as those in Sir John Thomson-Walker's paper, and is a source of much confusion. In the phenolsulphonephthalein test the result is expressed as a percentage, and the habitual use of the same terminology for blood urea would tend to stabilize the position of the decimal point.

*** We referred this note to Sir John Thomson-Walker, who writes: I am obliged to Mr. A. Basil Rooke for pointing out the clerical errors which have occurred in transcribing the figures of the blood urea in my address on prostatectomy. The figures should have been expressed in milligrams per 100 c.cm. Without doubt the use of two methods of record promotes confusion, and it would be safer to use one common method. Whether the urea should be expressed in terms of percentage or in milligrams per 100 c.cm. must lie with the biochemist rather than the surgeon.

THE NATIONAL MILK CONFERENCE.

AN account of the National Milk Conference held at the Guildhall, London, last October, under the presidency of Viscount Astor, appeared in our columns at the time. The full report of the proceedings has now been published, in a paper-covered volume of some 220 pages, by the National Clean Milk Society, the conveners of the Conference (3, Bedford Square, W.C.1; 3s. post free). It will prove of interest and value to all who take a practical interest in the problems connected with milk and dairies.

WINTER IN ITALY.

WE published a short time ago (January 20th, p. 116) an article on the opportunities Italy afforded to winter visitors. The Italian State Tourist Department, 12, Waterloo Place, London, S.W.1, has issued an illustrated pamphlet by Major W. Stormont, F.R.G.S., giving information on all the places mentioned in our article, and also a note on winter sport centres, such as Cortina d'Ampezzo. The price of the pamphlet is 6d., by post 1s.

MERCURY-VAPOUR LAMPS.

MESSRS. WATSON AND SONS (Parker Street, Kingsway, London, W.C.2) have issued a bulletin on the mercury-vapour arc, with descriptions of the mercury-vapour lamp made by them.

A CORRECTION.

THE price of the Dodge Brothers' coupé was given in our last issue as £375, whereas the figure should be £395.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 31, 34, 35, and 37 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 32, 33, and 34.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *47*.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line	0	1	6
Whole single column (three columns to page) ...	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.